

**BIRDS of
BUZZARD'S ROOST**

One for each Week

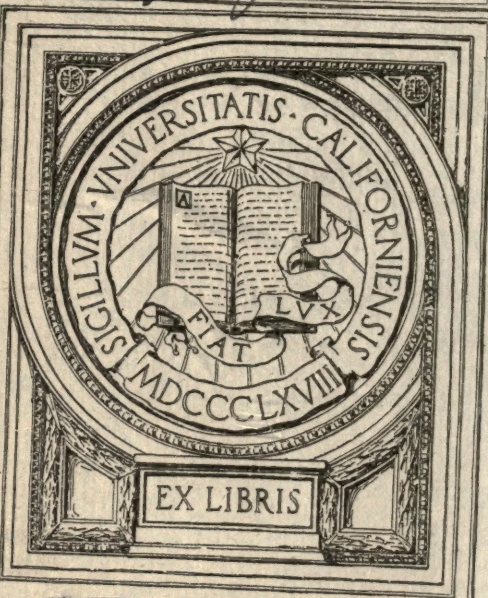
By

William Watson Weeden



GIFT OF

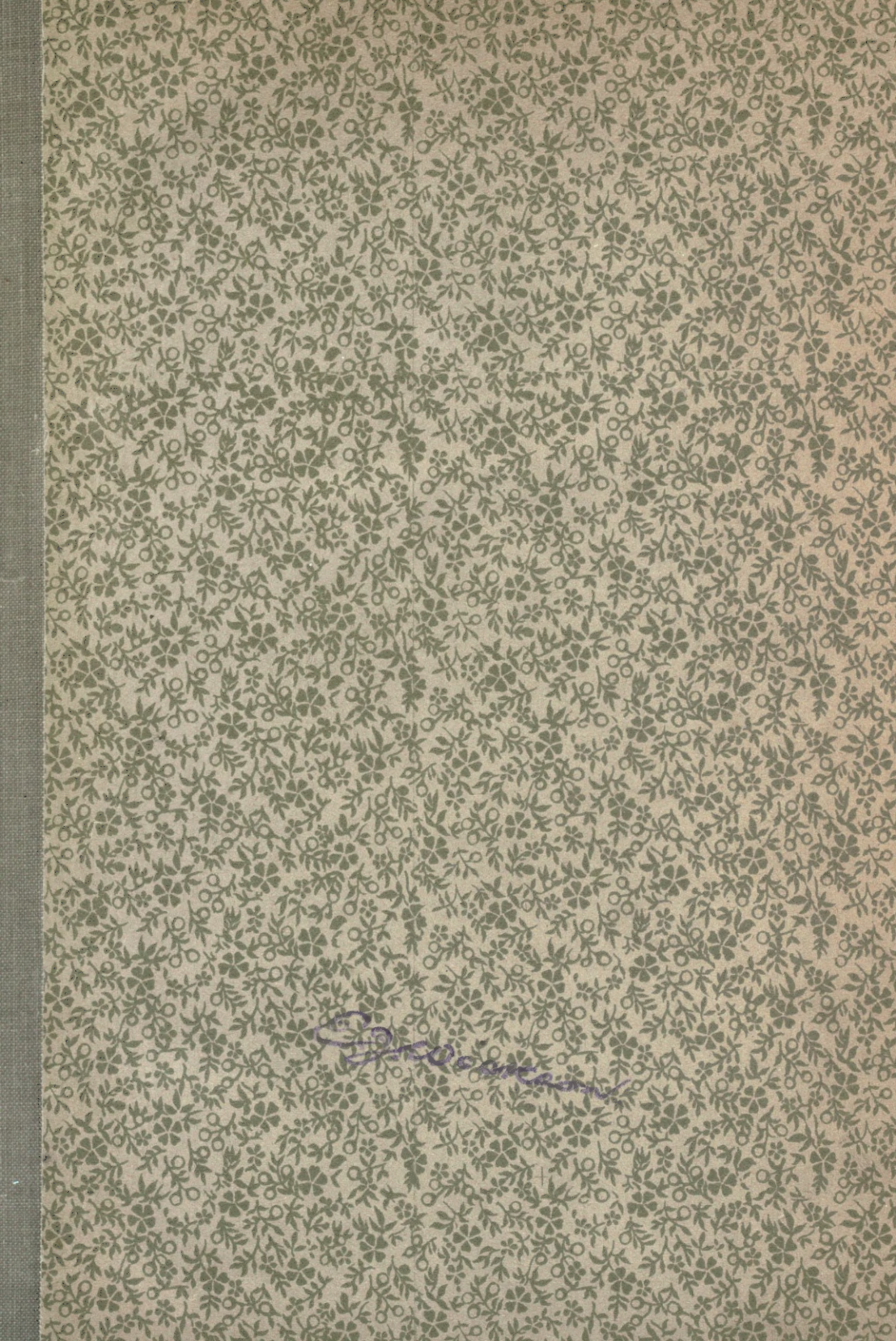
Prof. E. J. Wickman



EX LIBRIS

Main Lib. Agric. Dept.

BIOLOGY
LIBRARY
G

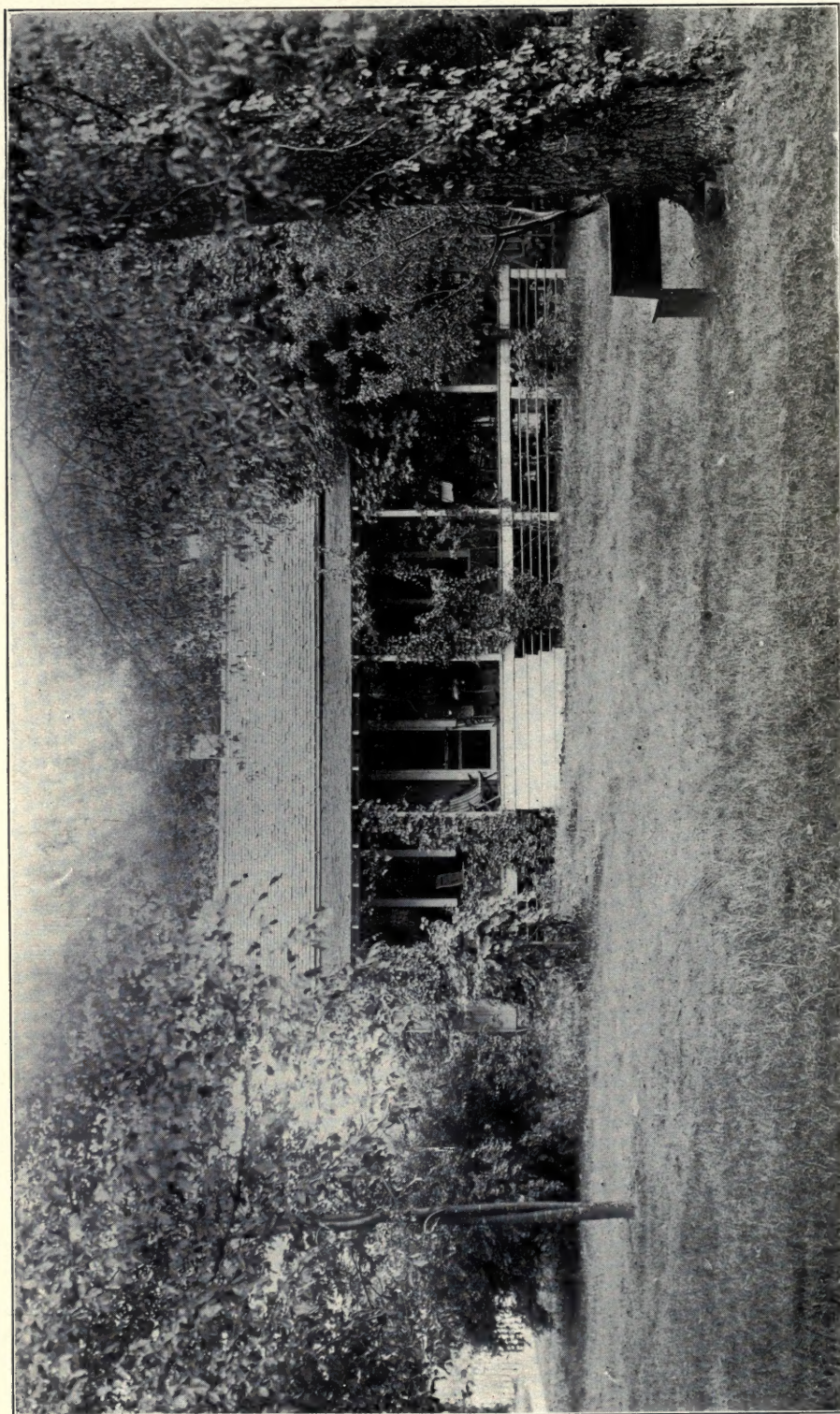


Sharon

Birds *of* Buzzard's Roost

E. J. W. Keon





Somerleaze

Birds *of* Buzzard's Roost

One *for* Each Week

AND

Other Essays

BY

WILLIAM WATSON WOOLLEN

With Fifty-Two Colored Plates
Twenty-One Half-Tone Photogravures
and Twelve Text Figures

"There is a pleasure in the pathless woods,
There is a rapture in the lonely shore,
There is society where none intrudes,
By the deep sea and music in its roar:
I love not man the less but nature more."

UNIV. OF
CALIFORNIA

SCOTT-MILLER COMPANY : *Publishers*
INDIANAPOLIS, IND.

1907

91164
L645
BIOLOGY
LIBRARY

Copyright, 1907,
By WILLIAM WATSON WOOLLEN
Published March 1, 1907.

Main Lib.
Agric. Dept

TO VMD
APPROVED

To
The children and the birds
This book is dedicated by its author,
Who can truthfully say:

“I’ve plucked the berry from the bush, the brown nut from the tree,
But heart of happy little bird ne’er broken was by me.
I saw them in their curious nests, close crouching, slyly peer
With their wild eyes, like glittering beads, to note if harm were near;
I passed them by and blessed them all; I felt that it was good
To leave unmoved the creatures small whose house was in the wood.”



Indianapolis Ind November 3, 1906.

My dear readers—

I would have a word with you. The scheme of this book is to give an account of fifty-two of our common birds—one for each week—hoping thereby to aid the teachers and pupils of our schools, and others who may want to commence the study of our birds, to a beginning in that study. In addition to this I have tried to write the story of each bird in such manner as to interest the general reader in the protection and preservation of our birds. Colored pictures accompany the sketch of each bird. Of these Mr. John Burroughs has said, "with a few exceptions, they are remarkably good and accurate." In making this book, through their books, I have had the companionship and help of many authors; of many personal friends, and of the birds. To all of these I am under many obligations. No originality is claimed for the technical descriptions of the birds, as these as well as many other matters have been freely taken from standard authors. "Perhaps I was not the man for the work; but I have liked it well."

Sincerely yours,
William Brewster Woollen

Wherefore Slay Them All?



You slay them all! and wherefore? for gain
Of a scant handful more or less of wheat,
Or rye, or barley, or some other grain,
Scratched up at random by industrious feet,
Searching for worm or weevil after rain!
Or a few cherries, that are not so sweet
As are the songs these uninvited guests
Sing at their feast with comfortable breasts.

Do you ne'er think what wondrous beings these?
Do you ne'er think who made them, and who taught
The dialect they speak, where melodies
Alone are the interpreters of thought?
Whose household words are songs in many keys,
Sweeter than instrument of man e'er caught!
Whose habitation in the tree-tops even
Are half-way houses in the road to heaven!

—Henry W. Longfellow

Contents

Chapter		Pages
I.	Buzzard's Roost	1- 8
II.	Cardinal	9- 15
III.	American Crow	16- 21
IV.	Blue Jay	22- 28
V.	Red-tailed Hawk	29- 33
VI.	American Sparrow Hawk	34- 38
VII.	Great Horned Owl	39- 43
VIII.	Screech Owl	44- 49
IX.	Turkey Vulture	50- 56
X.	Loggerhead Shrike	57- 61
XI.	Belted Kingfisher	62- 68
XII.	Great Blue Heron	69- 73
XIII.	Wood Duck	74- 79
XIV.	American Woodcock	80- 85
XV.	Killdeer	86- 90
XVI.	American Robin	91- 97
XVII.	Bluebird	98-103
XVIII.	Song Sparrow	104-109
XIX.	Wood Thrush	110-114
XX.	Brown Thrasher	115-118
XXI.	Catbird	119-123
XXII.	House Wren	114-130
XXIII.	Kingbird	131-135
XXIV.	Phoebe	136-141
XXV.	Bronzed Grackle	142-147
XXVI.	Cowbird	148-152
XXVII.	Meadow Lark	153-157
XXVIII.	Baltimore Oriole	158-163
XXIX.	Bobolink	164-169

Chapter	Pages
XXX. Dickcissel	170-174
XXXI. Ruby-throated Hummingbird	175-180
XXXII. Night Hawk	181-186
XXXIII. Yellow-billed Cuckoo	187-191
XXXIV. Yellow Warbler	192-197
XXXV. Purple Martin	198-202
XXXVI. Barn Swallow	203-207
XXXVII. Chimney Swift	208-215
XXXVIII. Scarlet Tanager	216-220
XXXIX. Rose-breasted Grosbeak	221-224
XL. Indigo Bunting	225-228
XLI. American Goldfinch	229-232
XLII. Red-eyed Vireo	233-236
XLIII. Mourning Dove	237-241
XLIV. Cedar Waxwing	242-247
XLV. Flicker	248-255
XLVI. Red-headed Woodpecker	256-263
XLVII. Downy Woodpecker	264-269
XLVIII. White-breasted Nuthatch	270-273
XLIX. Tufted Titmouse	274-278
L. Brown Creeper	279-281
LI. Bob White	282-288
LII. Junco	289-292
LIII. Tree Sparrow	293-295
LIV. Why Protect the Birds?	296-306
LV. How to Have the Birds	307-312
LVI. Nesting Boxes	313-319
A Prayer for the Birds	320
Index of Bird's Anatomy	321
Index of Orders and Families	323
Index of Contents	325

List of Illustrations

Colored Plates

Plate		Page
I.	Cardinal	9
II.	American Crow	17
III.	Blue Jay	23
IV.	Red-tailed Hawk	29
V.	American Sparrow Hawk	35
VI.	Great Horned Owl	39
VII.	Screech Owl	45
VIII.	Turkey Vulture	51
IX.	Loggerhead Shrike	57
X.	Belted Kingfisher	63
XI.	Great Blue Heron	69
XII.	Wood Duck	75
XIII.	American Woodcock	81
XIV.	Killdeer	87
XV.	American Robin	91
XVI.	Bluebird	99
XVII.	Song Sparrow	105
XVIII.	Wood Thrush	111
XIX.	Brown Thrasher	115
XX.	Catbird	119
XXI.	House Wren	125
XXII.	Kingbird	131
XXIII.	Phœbe	137
XXIV.	Bronzed Grackle	143
XXV.	Cowbird	149
XXVI.	Meadow Lark	153
XXVII.	Baltimore Oriole	159
XXVIII.	Bobolink	165

Plate		Page
XXIX.	Dickcissel	171
XXX.	Ruby-throated Hummingbird	175
XXXI.	Night Hawk	181
XXXII.	Yellow-billed Cuckoo	187
XXXIII.	Yellow Warbler	193
XXXIV.	Purple Martin	199
XXXV.	Barn Swallow	203
XXXVI.	Chimney Swift	209
XXXVII.	Scarlet Tanager	217
XXXVIII.	Rose-breasted Grosbeak	221
XXXIX.	Indigo Bunting	225
XL.	American Goldfinch	229
XLI.	Red-eyed Vireo	233
XLII.	Mourning Dove	237
XLIII.	Cedar Waxwing	243
XLIV.	Flicker	249
XLV.	Red-headed Woodpecker	257
XLVI.	Downy Woodpecker	265
XLVII.	White-breasted Nuthatch	271
XLVIII.	Tufted Titmouse	272
XLIX.	Brown Creeper	279
L.	Bob White	283
LI.	Junco	289
LII.	Tree Sparrow	293

Photogravures

Plate		Page
	Somerleaze	Frontispiece
ii.	Prefatory Letter	
iii.	A Bare Brick Structure	
iv.	Fall Creek and the Cottage	
v.	The Nesbit Tree	
vi.	The Cabins	
vii.	The Stump and the Bole of the Tree	
viii.	Members of the Indiana Academy of Science	
ix.	Song Sparrow's Nesting Place	106
x.	Kingbird's Nesting Place	132
xi.	Young Kingbirds	133
xii.	Vesper Sparrow's Nest	151
xiii.	Indigo Bunting's Nest and Eggs	151

Plate		Page
xiv.	Hummingbird's Nest	177
xv.	Cuckoo's Nest	188
xvi.	Young Cuckoos	189
xvii.	Mourning Dove's Nest	239
xviii.	Young Flickers	252
xix.	Young Woodpecker	258
xx.	Food Chart	296
xxi.	A Lesson in Weed Destruction	300

Figures in the Text

Figure		Page
1.	Skull of Flicker	254
2.	Head of Hairy Woodpecker	254
3.	Tongue of Woodpecker	254
4.	Nesting Boxes, variety of	313-18



Birds of Buzzard's Roost

One for Each Week

CHAPTER I.

BUZZARD'S ROOST.

Fall Creek has always had a fascination for me. I was born within a half mile of its mouth, on Indiana Avenue, in the City of Indianapolis, May 28, 1838. A bayou or branch of it crossed the avenue near our home in the city, and this caused my mother much anxiety, for I often stole away to it and watched our neighbor Todd's ducks paddle and feed in it. Those were the first birds with which I became acquainted.

Buzzard's Roost, about which I am to write, is located on Fall Creek about eight miles northeast from its mouth, and about the same distance from the city of Indianapolis. When I was about four years old my parents moved to a farm which was situated within about one and a quarter miles of it and I lived there with them in our log cabin home until I was almost nineteen years old.

"Backward gazing through the shadows,
As the evening fades away,
I perceive the little footprints,
Where the morning sunlight lay,
Warm and mellow, on the pathway
Leading to the open door
Of the cabin in the clearing,
Where my soul reclines once more."

The country then was new and our advantages few, but we were happy in the fullest sense of that word.



Birds of Buzzard's Roost

"When first the virgin forest heard the ring of woodman's steel,
And mighty oaks lay prostrate, the victim of his weal,
When bear and deer and bison roamed the prairie wild and free,
The blessed old log cabin was a comfort then to see."

"In the winter when the wild wind howled and snow storms raged
without,
The great old fireplace cast a glow, a radiance all about,
And many a happy child's sweet face reflected in that light.
There a sturdy father grew joyous at the sight,
And there a patient mother, too, toiled busy at her loom,
For the spirit of the pioneer had yet no thought of gloom."

There was an abundance of birds and wild animals in the fields and forests about us. In these I was much interested. Since my return to the city I have continued to be interested in outdoor life, and that I might enjoy it have done much tramping. I have not thought it wrong to tramp on the Sabbath. Indeed, while tramping on this day I have often felt that I was near to God, who "in the beginning" "created the heaven and earth," and when He had created them, "saw everything that He had made, and, behold, it was very good."

It was on Saturday, April 17, 1897, the day before Easter, that I took the train for Lawrence, where I found waiting for me Jason M. Wheeler, a pupil of mine in a country school which I taught up in the Fall Creek country when I was a young man. Maly, for that was the name we knew him by, and I have been warm friends since then. I went home with him and spent the night. The drive to his residence was pleasant, the day having been a beautiful one. It was good to have a night in the country with a family so delightful as was his. In due time we were served with one of those old-fashioned country suppers like those my mother prepared for us when we lived in the old cabin home. The affectionate regard shown by each member of this family for the other was noticeable. Easter morning we were up by five o'clock and the fields seemed to be alive with robins and meadow larks—the robins carolling and the meadow larks singing "spring of the year, spring is here." For breakfast we were served with delicious country ham and eggs fried in the gravy. My word for it, that was good eating. After breakfast Mrs. Wheeler played on the



The Nesbit Beech

Kellogg

TO VIND AIBSOLLAD



The Cabins

Douglas

piano and her daughter on the violin. This is what I call ideal living.

I very much regretted to say good-by to the family, but at eight o'clock did so, and started for a tramp down Fall Creek to Indianapolis, a distance of about fifteen miles, as the creek meanders.

"Across the amber meadows.
And through the marshes gray,
The sun a warmer yellow,
Has chased the fogs away.
The buds have burst their prison,
For the Christ, the Lord has risen,
And lives again to-day."

Maly walked with me to Spring Valley, now near the center of Fort Benjamin Harrison. It was here that he attended my school. We sat for awhile on the stile and indulged in reminiscences. Things were changed. Instead of being a schoolboy, he now was a father and a grandfather. Then, the old frame school house stood in a narrow valley between two ranges of Fall Creek hills. Rippling by was a beautiful rivulet. In front of the schoolhouse, across the road, gushed forth from the hillside a spring of cool, clear water. In the rear of it were a number of the finest beech trees that I have ever seen. It was an ideal place for a romancer.

"Nestling within the outskirts of the wood
A quaint old fashioned district school house stood.
The morning sunbeams glimmered on the floor
So pure and warm and bright, and through the door
The happy song of birds and bee
Commingle with the brook's melody."

The old schoolhouse had been replaced with a bare brick structure. Not a vine upon it or about it, and now it was going to decay. The great old beeches had been cut down, and this was true of most of the surrounding forest. The hill from which the spring had gushed forth had been dug away for the gravel that was in it, and this had destroyed the spring. The rippling rivulet seemed to have lost its music. It was utter desolation and enough to make one's heart ache.

Maly and I parted, and I resumed my tramp in earnest. I followed the rivulet to its confluence with Fall Creek; then went to Vandercook's, where I found a pair of blue jays building their nest in a cedar on the front lawn. I then left the fields for what once was known as Ghost Hollow. In less than a half mile I was into the hills and woods. I knew these hills when I was a boy. Then they were covered with great old poplars, oaks, walnuts, elms and other forest trees. Most of these had been cut down, and a younger growth had taken their place. After awhile I came to an old rail fence on the west of the Vandercook farm and climbed over it about two hundred feet to the south of The Cottage. Before me was a veritable wildwood. It was primitive. No stock had ever pastured in it. The buckeye and tulip trees were unfolding their beautiful foliage. The May flowers were just beginning to bloom. The anemones, pepper and salt, bloodroot, spring beauties, celandine poppies, hepaticas, trilliums and many other wild flowering plants garlanded the hill. This dense forest that I was entering was a bird paradise and resonant with bird song.

I had scarcely entered into this wild place when I came upon the prostrate trunk of a tulip tree—a magnificent specimen of its kind. It was about seventy feet in length to its first branches. No doubt it had been cut down by thoughtless hunters for a raccoon. Then I began the ascent of the hill, upon which a duplicate of my father's cabins have been built. When near the crest I heard a noise to my right of something tramping through the leaves. My first thought was that it was the passing of some wild animal. But, looking in the direction of the noise, I noticed coming up over the side of the hill from where the cottage stands, a man who looked much like the worst tramp that I had ever seen. His felt hat drooped over his forehead. His beard was sandy and cropped to about an inch in length. He was dressed in a brown wamus, a pair of overalls of like color and a colored woolen shirt, and was carrying in his hand a sycamore pole, like a fishing rod, say, ten feet long. I confess I was somewhat alarmed when I saw him approaching, for I must pass immediately in front of him. I made up my mind to make the best of my situation,



The Stump and Bole of the Tree



Members of the Indiana Academy of Science

Kellogg

and supposing that he had been fishing, asked him what had been his luck. He raised his head and said he had been down to the creek but had not been fishing. It then occurred to me that he was a member of a family with which I had been acquainted, and I said to him, "Are you not a White—a member of the Bob White family?" He answered, "I am Bob White myself." I had known Robert White, his grandfather, and had attended school with his father when I was a boy.

I became much interested in Mr. White, and found that he was an illustration of the old saying that "you must not judge a man by the clothes he wears." I asked him many questions about our surroundings. I told him about the large tulip tree that I had seen near the base of the hill, and remarked that it was a shame to waste such a tree. He answered, "Yes, I know that tree, but if you will come with me I will show you a much larger one which was cut down and left to decay. When it was standing it was known as the "Buzzard's Roost." I followed him over the hills to the prostrate trunk of what once was the second largest tree in the county. The illustrations show the stump of it and upon it a number of the members of the Indiana Academy of Science. The stump now measures twenty-eight feet in circumference at the base.

I now had become intensely interested in this wild and beautiful place. Mr. White walked with me and pointed out its boundaries, and many things of interest which are there to be seen. Among them the reputed burial place of a Miami Indian chief. He also told me that the land belonged to the State. He seemed to enjoy the walk and tramped with me after leaving the place over many hills until we came to Mount Nebo, where, at half-past eleven o'clock he left me and returned. As we tramped he told me of many interesting things about the hills. He had been reared among them and was as familiar with what was there as I was with what was in my study. It almost made my mouth water when he was telling me of the fine pawpaws that he had gathered there the autumn before. Near the top of one of the hills he showed me the burrow of a skunk and told me that he had killed one there much to his regret. And this is the story of the discov-

ery of Woollen's Garden of Birds and Botany, now better known as Buzzard's Roost.

It contains forty-four acres, twenty-nine of which is a primitive forest and fifteen in cultivation. It is a law of the place that no living thing is to be harmed there except as a last resort to prevent it from doing harm. The wild creatures there seem to understand this and many of them have lost their wildness and become fearless, gentle and friendly, and come to the cabins, cottage and barn for food and nesting places. The fox and gray squirrels have increased very rapidly and are gentle and saucy. The woodchucks have their homes along the hillsides, and it is interesting to see them scudding for these. The rabbits wander down from the forest and the muskrats from the bank of Fall Creek into the cultivated portions. Occasionally these do damage to the small trees and tender plants, but this is compensated by the fact that their presence add numbers to the fauna of the place. In addition to these, red foxes, raccoons, opossums, skunks, minks, weasles, chipmunks and flying squirrels are found there. To these may be added water and land tortoises, frogs and snakes. All of the resident birds are found there and it is a favorite resting place for the migrants in the spring and autumn. Because of the fact that the land has never been pastured, the flora of the place is abundant, including almost every tree, shrub and vine indigenous to this section of the country. The fifteen acres has been planted in fruit, special attention having been given to the planting of that which will provide food for the birds. Other trees, shrubs, vines and plants are being collected and planted with a view of making of the place a real garden of birds and botany, and for all time to come it is to be a place for nature study.

•



"A Bare Brick Structure"



Fall Creek and the Cottage



CARDINAL.
(*Cardinalis cardinalis*).
 $\frac{7}{8}$ Life-size.

COPYRIGHT '900, BY A. W. MUMFORD, CHICAGO

CHAPTER II.

January 1—January 7.

THE CARDINAL.

Order, Passeres

Suborder—Oscines

Family, Fringillidæ

Genus, *Cardinalis*

Species, *Cardinalis cardinalis*

Length—7.50 to 9.25; wing, 3.55 to 4.00; tail, 3.90 to 4.60.

Permanent Resident.

"How oft our trust, most deep and true,
Clings to some redbird's winter strain,
Who knew unknowing why he knew,
That long lost Spring would come again."

The family Fringillidæ, to which the cardinal belongs, is composed of the finches, sparrows, grosbeaks, and cross-bills. It is our largest family of birds, having in it about five hundred and fifty species, or about one-seventh of the entire number. Members of it are found in all parts of the world except Australia. They present a wide diversity of form and habit, but generally are alike in possessing stout, conical bills, which are well adapted to crushing seeds. They are our chief seed eaters and among our most useful birds. Because of their seed-eating habits they are not so migratory as the insect-eating species. Generally they are fine songsters.

The bill of the adult male cardinal is of a brilliant coralline color, very thick and powerful for breaking hard grain and

seeds; chin front and lores black; head is ornamented with a high, pointed crest which can be erected or flattened at the pleasure of the bird; iris of eye dark hazel; general color of the body a cardinal or brilliant red, darkest on the back, rump and tail; tail extends about three inches beyond the wings, and is nearly even at the end; legs and feet a light clay color. The adult female is not so large as the male. Her color above is light olive with a yellowish tinge on the head, and brownish yellow on the sides; the top of the crest, the wings and tail are nearly as red as those of the male; the chin, front and lores are light ash; breast and lower parts a reddish drab; bill, eyes and legs like those of the male; crest not so long.

There is a beautiful legend as to how the different colors of these birds were acquired. Two Indian warriors hated each other. The one had a daughter, Gonda; the other a son, Towai. The children were forbidden to speak, but loving each other, they met in the forest and stayed so long that their irate parents missed them and went in search of them. The winds, the trees, the fireflies, the fire and the leaves rescued them and suddenly they were changed into birds. They chose to become sparrows and hence the cardinal is of the sparrow or finch family. There was great confusion and the birds of the forest bade them fly from the flames of the fire that had been kindled by the fireflies in the dead leaves to effect the change. The birds said to them, "You have wings, do not look at the earth, lest you grieve to leave it." Gonda was obedient and flew above the flame and was only tinged with it. But Towai loathing to leave the earth, lingered so long that his feathers became red from the flames, and the soot blackened his face. Since then these birds have been devoted to each other and it is said that when they once mate, it is for life.

The cardinal is known by various names, most of which have been suggested by different features and characteristics of the bird. For instance, it is called the Virginia Nightengale because of the fact that it was first found in large numbers in Virginia and its beautiful song was suggestive of that of the nightengale of Europe, the redbird, the crested redbird, and the cardinal grosbeak because of its color and the great size of its beak. In his Hoosier Bards, my friend, Benjamin S.

Parker, being displeased that so beautiful a singer should be named for the shape of his beak, writes:

"When golden plppin trees are white
Some mellow, liquid notes are heard,
That mingle in one brief delight
The thought of man, the soul of bird.
Sing on my redbird! strains that speak
A tenderer hope than words can tell;
The boor who named thee for thy beak
Had never felt the witching spell
Of wild bird music, such as cleaves
The crust of pride, and wafts the soul
From hate that blinds, and care that grieves
To love taught art's divinest goal."

As a rule cardinals begin to sing in February and they continue singing throughout the spring, summer and autumn. I was at Buzzard's Roost January 1, 1905. It was a beautiful day and so warm that the bees were in flight and the cardinals were singing most beautifully. I spent the last half of August, 1904, there as a vacation. I then noticed that the cardinals were singing more than any of the other birds. August 17, I made this entry in my note book: "The cardinal was the first bird to sing this morning and at 6:30, as the almost blood-red sun sank behind the trees, I heard him singing within a few hundred feet of where I first saw him January 4, 1898." Both male and female sing; the female sings in an undertone and more softly. In Harper's Magazine for March, 1906, is a most charming article by Jennie Brooks in which she tells of the ways of two cardinals which nested in the yard about her home for several years in succession. In speaking of the ways of the male she says, "This bird had and has the most astonishing voice I ever heard, and it did seem that summer as if even the birds themselves stopped to listen when he sang at twilight. One by one their voices dropped away as, just when the stars came twinkling out each evening he flew to the highest tree-top in our garden and poured out his heavenly notes. The purity of its tone, and his wonderful range and flexibility of voice I have never heard equalled by any bird. The vesper song, even, did not satisfy his soul, and often when a light

shone from our window across the vine where he slept, at ten or eleven o'clock at night, he suddenly awakened and began to sing. Out into the stillness of the night he flung the exquisite sweetness of his song. Then came the trilling, perfect bubbles of music and a run from low C up to B flat C, in endless repetition, until, breathless and sleepy, he must perforce give over the concert until dawn. But repeatedly subdued half-tones came out from among the leaves, as if he were hardly yet persuaded that the lamplight was not some new kind of sunrising." In speaking of the ways of the female she says, "She sometimes added to the charm of her flight by sitting on the twig for two or three minutes, before stepping into the nest, and pouring forth notes of bewildering sweetness. This was her especial accomplishment—to fly home and, before settling down to the monotony of brooding, whistle ecstatically. Many times in the day did she repeat this. Occasionally on the nest she would whistle and call in such low, clear tones, raising her head to listen for my answer or for her mate's, if he were in the vicinity, that I felt she had, in the joy of maternity, forgotten all its pain." At Buzzard's Roost I have enjoyed these responsive songs, the male singing from the tulip tree near the cottage and the female from the timber near the bank of Fall Creek.

The bill of a bird is its most important organ. By its shape an ornithologist can tell to what family the bird belongs and upon what the bird feeds. Mr. Frank M. Chapman in his *Bird Life* has well said, "The variety of offices performed by the bill, and the corresponding numerous forms it assumes are, doubtless, without parallel in the animal world; and wonderful indeed are the forms it assumes to supply the appetites of birds who may require a drop of nectar or a tiny insect from the heart of a flower, a snake from the marshes, a clam or a mussel from the ocean's beach, or a fish from the waters. The bills, therefore, become a forceps, lever, chisel, hook, hammer, awl, probe, spoon, spear, sieve, net and knife—in short, there is almost no limit to its shape and uses." The cardinal, as we have seen, has a grosbeak and this well serves it in cracking and crushing its food, which consists of the larger seeds, smaller nuts and wild fruits. The large cavity in its bill, no doubt,

adds character and tone to its voice, and makes of it the fine singer that it is.

The cardinal is not a migrant. In this regard its history is unique and interesting. Originally it was a bird of the south. But gradually they have extended their range until now they are found in Iowa, Indiana, southern New York, and casually in Maine, Ontario, southern Michigan and Minnesota and west to Kansas and Texas. As I have already said, January 4, 1898, I found a pair of them in the timber strip bordering Fall Creek at Buzzard's Roost, and seemingly very happy, notwithstanding it was a very cold day and the earth was covered deep with snow—and thereabouts they could have been found every day in the years which have gone by since then. In his interesting bulletin, *Some New Facts about the Migration of Birds*, Mr. Wells W. Cooke says that the lives of many cardinals and quails are spent within a circle of ten miles. Mr. James Lane Allen evidently understood this, for in *The Kentucky Cardinal* he says: "With almost everything that he touches this high herald of the trees is in contrast. Among his kind he is without a peer. Even when the whole company of summer voyagers have sailed back to Kentucky singing and laughing and kissing one another under the enormous green umbrella of nature's leaves, he still is beyond them all in loveliness. But when they have been wafted away again to brighter skies and to soft islands over the seas, and he is left alone on the edge of that northern world which he has dared invade and inhabit, it is then amid black clouds and drifting snows that the gorgeous cardinal stands forth in the ideal picture of his destiny."

I am convinced that the cardinals mate for life. The pair I found at Buzzard's Roost in 1898 have been seen near the same place whenever I have gone there. At Somerleaze a pair of them can be found upon the lawn at any time of the year. By the first of April they are nest building. The nest is built in a bush or vine, usually three to ten feet from the ground and sometimes in the vines that drape the walls and screen the windows of residences; occasionally they are built in the tree tops. The pair at Somerleaze built their nest in a cedar on our front lawn about four feet from the ground and this gave

me a good opportunity to observe them. The nest was a rather bulky affair composed of twigs, leaves and grass, and lined with fine grass, roots and hair. The eggs, a clutch of which ranges from three to five, are pale gray and beautifully marked with spots or blotches of brown. Often they hatch two broods in a year. When this occurs it is said that the male takes charge of the first brood while the female gives attention to incubating the second, and he faithfully takes care of them and will fight, if need be, for their protection. Indeed, pugnacity is one of the characteristics of the cardinal. It is said that when a pair of them have established themselves in a certain locality, the male will not suffer another bird of his kind to trespass upon his territory. This characteristic is well portrayed in Mrs. Porter's *Song of the Cardinal*, when she says: "With his feathers plastered tight, the cardinal lighted on a willow and leaned to look, quivering with excitement and uttering explosive 'chips' for there he was face to face with a big red bird that looked neither peaceful nor timid. He uttered an impudent 'chip' of challenge, which, as it left his beak was flung back to him. The cardinal flared his crest and half lifted his wings, stiffening them at the butt, the bird he was facing did the same. In his surprise he rose to his full height with a dexterous little side step, and the other bird straightened and side-stepped exactly with him. It was too much for the cardinal. Straining every muscle, he made a dash for the impudent upstart and struck the water with such force that it splashed above the willows." There are well authenticated cases of a like attack when cardinals have seen their own reflections in a window or looking-glass. This characteristic of the cardinal is taken advantage of by bird hunters. They provide themselves with a cage constructed with a trap compartment, which is so arranged that the cage can be entered from the outside. Inside is placed a captive cardinal, and the cage placed in the neighborhood where a pair of cardinals have been known to stay. Then the trapper conceals himself in the immediate vicinity of the cage and whistles in imitation of a cardinal. If one is near by, his curiosity will be excited and he will endeavor to find the cardinal that is whistling and in so doing will discover the one that is in the cage, and be

eager to fight him. In trying to get at the prisoner, the victim will go into the cage trap, and is thus caught. This nefarious business should not be tolerated and should be prohibited by law, and the caging of birds made a crime. In some states they have such laws, and I am glad that finally such an one has been enacted in Indiana. When Mr. James Lane Allen caught a boy trying to trap his cardinal, it caused him with indignation to say: "All day this meditated outrage has kept my blood up. Think of this beautiful cardinal beating his heart out against maddening bars or caged for life in some dark street, lonely, sick and silent, bidden to sing joyously of that high world of light and liberty where once he sported! Think of the exquisite refinement of cruelty in wishing to take him on the eve of May!"



AMERICAN CROW.

CHAPTER III.

January 8—January 14.

THE AMERICAN CROW.

Order, Passeres

Family, Corvidæ

Genus, Corvus

Length—18.50 to 19.50; wing, 13.00 to 13.50; tail, 6.90 to 8.00.

Suborder—Oscines

Subfamily—Corvinæ.

Species, Corvus americanus

Permanent Resident.

"I hear no more the robin's song

Through the gay network of the wintry woods;

Only the cawing crows that all day long

Clamor about the wintry solitudes."

The family Corvidæ, composed of the crows, jays and magpies, contains about two hundred species, and members of it are found in all parts of the world except New Zealand. Audubon first separated the American crow from the European species and gave to it its distinguishing name, *Corvus americanus*. It is one of the best known birds. Its bill is about two inches long, of a black color, strong and compressed; the upper mandible is a little convex and the lower one straight. The head is large, and the whole form of the bird is compact and graceful. The iris is full and of a brown color. The legs are strong and of moderate length, and the bird has a noble carriage when walking. In flight the wings have a serrated appearance. The plumage is of a deep black color, with purplish blue reflections, and tinged with purplish brown on the back of the neck. The female is slightly less glossy than the male and a trifle smaller.

The range of the American crow extends from northern Mexico to the Arctic regions. It is recorded that in the bleak interior of Greenland, five hundred miles northeast of Jacob's Haven, Lieutenant Hallerman saw a mountain range swarming with crows, and that they seemed to subsist on lemming rats, their only fellow inhabitants of those treeless solitudes. They have been known to breed within the Arctic Circle. They do not migrate in the true sense of that term. They are partially gregarious in their habits. In October and November they collect into what are called roosts and in March they break up and separate into small colonies. The following is a graphic account of one of these roosts near Indianapolis, written by my friend, George S. Cottman. He says, "By four o'clock in the afternoon the crows began to come in from every point of the compass; straggling at first, then in flocks that increased in number and size till continuous streams seem to be converging at this point, and the air overhead was fairly filled with a chaos of black flakes soaring and circling about. Evidently they came together for the purpose of enjoying a grand social carnival. They congregated in the adjoining meadows in vast crowds, where they walked about intermingling and hob-nobbing; the rail fences presented long, unbroken lines of black, and the isolated trees in the fields seemed suddenly to have taken on some strange, large-leaved foliage. When the multitude took alarm and all arose at once, they were like the famous cloud of locusts, and it looked as if a rifle-ball fired at random would bring down a score. As one stood in the woods the spectacle of these thousands of birds swirling and eddying among the tree-tops had a bewildering effect, which was heightened by the incessant clamor. Free speech seemed to be the order of the occasion. Every crow had something to say, and he said it, and as no individual could be heard for the others, the result was a conglomeration of noises that could be heard a mile, and which sounded precisely like a tremendous escape of steam. The jollification continued till long after dark, and all through the evening they kept up a boisterous, many-voiced conversation." As soon as it is light in the morning, they depart in every direction to their feeding grounds, and sometimes these are many miles away.

The nest of the crow is built in all kinds of woodland, dense and open, river valleys and hill-land. Often several nests are found near each other, and when a stranger approaches the community, the noise of the assembled multitude is almost deafening until the intruder leaves. We have them nesting at Buzzard's Roost in the densest of the woodland in the tops of beech trees. The period of nesting varies from February to June according to latitude. The nest is made of sticks interwoven with grasses and lined with soft roots, grasses, feathers or wool. The eggs are four to six, of a pale greenish color, spotted and clouded with brownish green and purplish gray. Both sexes assist in incubation which lasts about eighteen days. They are watchful and attentive to their young, and it is a very pretty sight to see them feeding after they have left the nest.

Very generally the crow is in disrepute. There is probably no bird more generally and unjustly persecuted than it. In the first place, this is so because it is black. Some one, I think it was Mr. Selim H. Peabody, has well said, "there has always been a certain foolish and groundless prejudice against any creature which wears the sombre color; a black sheep is the derision of the flock; a black cat is the fit confident of a witch; the prince of evil is painted black; a black man is hardly admitted to the rights of manhood;—and crows are black. In the next place, in the great variety of things which furnish them a living, they persist in eating certain items which man claims as his, and denies their right to, particularly corn." And then they are not gifted with song, and they are accused of robbing nests of their eggs and their young. Long ago Audobon said, "The crow devours myriads of grubs, every day in the year, that nightly lay waste the farmer's fields. It destroys quadrupeds innumerable, every one of which is an enemy to his poultry and his flocks. I can but wish men would reflect a little, and become more indulgent toward our poor, humble harmless and even most serviceable bird, the crow." What Audobon then said as to the value of the crow has since been well established by scientific investigation. It is true that during the winter two-thirds of the food of an adult crow is vegetable and the principal part of

this consists of corn. But the spring, summer and fall months when they are rearing their young, insects of all kinds, the cicada, May beetles, June beetles, and especially their larvae, the well known white grubs, grasshoppers, crickets, cutworms, carrion beetles, spiders and their eggs, field mice, snakes, frogs and the like, constitutes the bulk of their food. One of the most beautiful bird sights that I have ever witnessed was that of about five hundred crows working in a meadow, hunting for the white grub which is so injurious to our meadows and all kind of vegetables. They commenced at one side of the meadow and worked it over with a leader in a V shape. At Somerleaze I have often seen them singly and in flocks doing the same thing. They have not disturbed our growing corn. Longfellow was right when he wrote:

"You call them thieves and pillagers; but know,
They are the winged wardens of your farms,
Who from the cornfields drive the insidious foe,
And from your harvests keep a hundred harms.
Even the blackest of them all, the crow,
Renders good service as your man-at-arms,
Crushing the beetle in his coat of mail,
And crying havoc on the slug and snail."

The flight of the crow is strong and vigorous. He seldom flies high and especially when the wind blows, he flies very low. This calls to mind an incident of my childhood. Our family was large and our parents of limited means. My brother and I, being the oldest, were required to make ourselves useful, both in and out of the house. Our milkhouse stood about fifty feet from the northwest corner of our cabin home. Across the fields to the northwest, not far away stood a hackberry tree. One morning mother put us to churning, and knowing our love for hackberries, warned us that if we played hookey and went to the hackberry tree, the crows would come and carry us away. Notwithstanding this, we could not resist the temptation to go after hackberries. We had been under the tree only a few minutes when two crows came over the woods and when just over the hackberry tree, the leader called, "caw, caw" and both of them swooped down to avoid the wind. Two boys were never worse scared than we.

Mother's warning had come to pass—we were to be carried away! And how we did run to the house and call for her help!

I have said that the crow called, "caw, caw." By many this is believed to be their only call. In fact, however, this is varied much and of this I have fully convinced myself by observation. Mr. Abbott in *A Naturalist's Rambles About Home* says that they have twenty-seven distinct calls or utterances, each really distinguishable from the other, and each having an unmistakable connection with a certain class of actions; some of which as for instance, the many different notes of the brooding birds, are heard only at certain seasons.

It is certainly true that the crow is one of the most intelligent of our birds. Instances of the exercise of much cunning and forethought on their part are innumerable.

"The crow is rather shy,
With a watchful eye
For danger coming nigh,
And any one
Who bears a gun
He's pretty sure to spy.

"That he's selfish, we admit,
And he has a lot of grit,
And on favor not a bit
Does he depend;
Without a friend,
He must live by mother-wit."

And by this mother-wit they have managed to outwit man, and instead of being exterminated as other birds have been, they have gradually increased so that today there are more crows than were ever before in this country.



BLUE JAY.
(*Cyanocitta cristata*).
½ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER IV.

January 15—January 21.

THE BLUE JAY.

Order—Passeres

Suborder—Oscines.

Family—Corvidæ

Subfamily—Garrulinæ

Genus—Cyanocitta

Species—Cyanocitta cristata

Length—11.00 to 12.50; wing, 5.00 to 5.70; tail, 5.05 to 5.70.

Permanent Resident.

"The Jaybird he's my favorite
Of all the birds there is!
I think he's quite a stylish sight
In that blue suit of his;
And when he lights and shuts his wings,
His coat's a cutaway—
I guess it's only when he sings,
You'd know he was a jay."

The subfamily Garrulinæ, is composed of the magpies and jays. The magpie of this country is found west of the Rocky Mountains. Alexander Wilson in his American Ornithology says that in 1804, the exploring party under the command of Lewis and Clarke on their route to the Pacific Ocean across the continent first met the magpie somewhere near the head of the Missouri, and found that the number increased as they advanced. Here also the blue jay disappeared; as if the territorial boundaries and jurisdiction of these two noisy and voracious families of the same tribe had been mutually agreed upon and settled. Major Bendire in his Life Histories of North American Birds describes thirty-one species and sub-

species of jays. So far as I am advised, the blue jay, *cyano-citta cristata*, is the only species of this subfamily that is found in the Middle States. Of all our native birds, it, perhaps, is the most conspicuous throughout the year. In outward appearance there is no reason why it should have been placed with the crow in the family *corvidæ*; systemists tell us, however, that structurally they are very much alike.

The general colors of the blue jay are purplish and ultramarine; the bill is dark and well proportioned; the head is ornamented with a light blue crest, which can be elevated or depressed at the pleasure of the bird; a narrow line of black runs along the frontlet, rising on each side higher than the eye, but not passing over it; iris of the eye hazel; collar of black proceeding from behind the head, passes with a graceful curve down each side of the neck to the upper part of the breast, where it forms a crescent; wings and tail are about the same length, well rounded and beautifully barred with black; the tips of the primaries and secondaries of the wings and the tail feathers are white; breast and sides under the wings dirty white, faintly stained with purple; belly reddish-white; legs and feet black; toes, four in number, are strong, with hind claw large and longer than the toe. There is little, if any, difference in the appearance of the sexes.

The range of the blue jay extends from the Texas and Florida coast north through the United States, east of the Rocky Mountains, to New Foundland and Hudson Bay. They breed throughout their entire range. They are, however, non-migrants; when once located they remain with us all the year, and are always ready to make themselves known. During the second week in January 1898, I was at Buzzard's Roost on a tramp. The forest was most beautifully bedecked with snow and in the very midst of it I came upon a cardinal, blue jay and winter wren upon the same tree. The cardinal was shy, the blue jay saucy and the wren just as busy as it could be at work searching for food. Another of my pleasant recollections is that of a tramp made several years ago in January, the next morning after a deep snow had fallen. The day was one of those cold, crisp ones that makes the blood tingle in one's veins. I took an interurban car and went far out into

the country and then tramped through it for several miles. The snow gleamed in the bright sunshine and not a track of animal or bird was to be seen. All the world seemed to be silent. Indeed, its stillness was oppressive. After awhile I came to a great elm standing alone by the roadside, and, perched on its topmost limb, was a saucy blue jay making himself known to me by his shrill "jay, jay"—and I admired the jaunty bird and his courage.

The blue jays commence nesting as early as the middle of March. In one of my tramps on an Easter Sunday, I found a nest quite completed in a cedar tree in a farmer's front yard. Their nests usually are built five to twenty-five feet from the ground in a vine, bush or tree; are not very elaborate, are built of twigs, bark, rootlets and the like and lined with finer material. The eggs are of a greenish or yellowish drab, thickly spotted with greenish brown and dull black; three to six constitute a clutch. Both birds take part in the incubation and feeding of their young, and in their domestic relations and habits are models of propriety and devotion. The young leave their nest when they are about sixteen days old.

A communication from Richmond, Indiana, says: "A most remarkable instance of unnatural mating of birds has been brought to light here by the pupils of the Richmond High School, who are students of ornithology. On one of the sparsely populated streets in the southern part of the city there stands a large maple tree in which a robin and blue jay have built a nest. The blue jay is regarded as an enemy to the robin. In this case, the blue jay is as devoted to the robin as it is possible to be. When Mrs. Robin leaves her nest and eggs to go in search of food, the jay takes her place until she returns." At first blush this might seem incredible, but I find that Darwin says, "It is certain that distinct species of birds occasionally pair in a state of nature and produce hybrids. Many instances could be given. Macgillvary relates how a male blackbird and female thrush 'fell in love with each other and produced offspring.' Several years ago eighteen cases had been recorded in Great Britain of hybrids between the black grouse and pheasant; but most of these cases

may perhaps be accounted for by solitary birds not finding one of their own species to pair with."

Blue jays, like their cousins the crows, are intelligent and ingenious birds and can communicate with each other. In January, 1902, my friend, Mr. Max Munte, wrote to me saying: "I have a pair of jay birds among my numerous family of sparrows. Their notes of warning are frequently heard and I invariably find that they have discovered a screech owl in one of the large maple trees in front of my residence—and what a noise they can make! The other day there was quite an amusing scene. The pair of jays and sparrows tried to dislodge the poor little owl from its place. Many attempts were made but all failed. All at once the cry of the jays and the scolding of the sparrows ceased. The jays flew away. The sparrows in the meantime formed a silent cordon completely around the enemy, and in but a few minutes from the time the pair of jays left the field of battle, they returned with nine new jay recruits which with the original two and the hords of sparrows, made a formidable army against the little owl, but the brave little fellow would not budge, and gave tit for tat with bill and wings. All this racket was kept up until nearly night. The owl was getting the best of it. The sparrows, one after another, ventured to their homes, but not without giving us a taste of their sweet voices, scolding and lamenting bad luck. My two jays remained. The battle was over and the little owl was victor." He adds, "It would be interesting to know where those nine jays came from. The two that went after them undoubtedly knew where to find them. The distance must have been considerable, if we measure by the length of absence. Also the two messengers which went after them must have had some way by action or voice to communicate their object in coming after them, and of a prospective fight with their enemy, the owl."

The blue jay is not a songster. His call notes, however, are varied and some of them are not unmusical. Some of them sound like "cable, cable, cable"; "we-hue, we-hue, we-hue"; "de-leary, de-leary, de-leary"; "de-jay, de-jay, de-jay"; "jay, jay, jay." One of my friends says that when he wants to trick a man, he calls "jay, jay," and when the man's attention

is attracted to him, he will in derision call, "too-slick, too-slick." This may be fancy. Indeed, the translation of what the birds say is difficult and often imaginary. The jay, however, does have a fashion of mimicking the distress calls of other birds and when he has done so seems to delight in the fact that he has fooled them. It is in winter that the jays are most boisterous and then at times they become very noisy. Then when in flight, they often turn to those behind and chatter long and loudly. When nesting time comes they quit their noisy practices and give attention to the more serious duties of rearing their young.

Since the days of Audubon, the blue jay has been denounced, and has been accused of being "dishonest, cruel, murderous and villanous." Audubon brands him as a coward and says, "The cardinal grosbeak will challenge him, and beat him off the ground. The red thrush or the mocking bird, and many others, although inferior in strength, never allow him to approach their nests with impunity; and the jay, to be even with them, creeps silently to it in their absence, and devours their eggs and young whenever he finds them." It is said, however, that the figures clear his name of these and other ugly charges. Professor F. E. L. Beal, of the United States Department of Agriculture, made an examination of two hundred and ninety-two stomachs of the blue jay, collected in every month of the year from twenty-two states, the District of Columbia and Canada, and in the summary to his report he says; "The most striking point in the study of the food of the blue jay is the discrepancy between the testimony of field observers concerning the bird's nest-robbing proclivities and the result of stomach examinations. The accusations of eating eggs and young birds are certainly not sustained, and it is futile to attempt to reconcile the conflicting statements on this point, which must be left until more accurate observations have been made. In destroying insects the jay undoubtedly does much good. Most of the predacious beetles which it eats do not feed on other insects to any great extent. On the other hand, it destroys some grasshoppers and caterpillars and many noxious beetles, such as Scarabeids, click beetles, weevils, Buprestids, Chrysomelids, and Tenebri-

onids. The blue jay gathers its fruit from nature's orchard and vineyard, and not from man's; corn is the only vegetable food for which the farmer suffers any loss, and here the damage is small. In fact, the examination of nearly three hundred stomachs shows that the blue jay certainly does far more good than harm."

In some localities the blue jay is called the Tree Planter. He gets this designation because of his habit of burying nuts and acorns. Mr. D. S. Smith of Crawfordsville, Indiana, told me of an instance of this kind that came under his observation which is interesting. It is his habit to feed the squirrels about his home. One day he put out for them a pocket full of chestnuts. While doing it he noticed that a blue jay was watching him. Just as soon as he left the jay flew down and got a chestnut which he carried some distance and buried in the ground. He then looked around about for a leaf and having found one took it and covered the hole in which he had buried the chestnut; and this he repeated until he had carried away about a dozen of the chestnuts. Why did he put leaves over the holes in which he buried the chestnuts?

THE
NATURE
STUDY
PUBLISHING
CO.



CHAPTER V.

January 22—January 28.

THE RED-TAILED HAWK.

Order—Raptores

Suborder—Falcones

Family—Falconidæ

Genus—Buteo

Species—Buteo borealis

Length—19.00 to 25.00; wing, 13.50 to 17.75; tail, 8.50 to 10.50.

Permanent Resident.

"Dimly I catch the throb of distant flails:

Silently overhead the henhawk sails,

With watchful measuring eye for his quarry waits."

The family Falconidæ consists of about three hundred and fifty species distributed throughout the world. One tenth of these are found in North America. The family is composed of the falcons, hawks, eagles, kites and ospreys, and is divided into three sub-divisions, namely: Accipitrinæ, composed of the kites, buzzards, hawks, and eagles; (2) Falconidæ, composed of the falcons and (3) Pandioninæ, composed of the ospreys. These birds are characterized by their comparatively short wings, long legs, powerful talons, and a bill which begins to decurve from the cere, and has the cutting of its upper mandible sinuated but never notched. All of them are birds of diurnal prey which they take by pouncing upon it and seizing it with their talons.

The red-tailed hawk may be called our winter hawk and for this reason the distinguishing name borealis is most

appropriate. From its abundance, wide distribution and striking appearance it is probably the best known of all the larger hawks. It is about two feet long. The body is large and muscular. Its bill is blackish brown, much decurved and well adapted to tearing its food into shreds; cere, light yellow; iris, yellow; general color of upper parts of the body, including the head and a band below the throat, dark brown, variegated with gray; primaries, dark brown; tail fan-shaped, and a rich reddish chestnut with a broad terminal bar of blackish brown and white tips; throat, creamy white with brownish streaks; breast, buffy-white with heavy brownish streaks on upper part, and few or none on the lower part; belly, silvery white; legs and feet, yellow; claws, black, much decurved and well adapted to seizing and holding its food. Male and female are alike in appearance.

This hawk is a resident of Eastern North America, west to the Great Plains. It is generally distributed and breeds more or less abundantly in suitable localities in all portions of the United States east of the Mississippi River. North of the United States it is found throughout the southern parts of the Dominion of Canada, ranging from Newfoundland, Nova Scotia and New Brunswick, through the provinces of Quebec and Ontario, west to Manitoba and the Northwest Territory. It is partial to moderately timbered districts, swampy woods, and the bottom lands of streams. At Buzzard's Roost we have a number of them that may be seen coursing their way up and down Fall Creek and a pair of them nest in the fork of a beech tree in the midst of the woodland.

It is thought that these hawks mate for life. The nesting site may be found in or near the same place for several years in succession. The nest is usually built in the fork of a tree and from thirty to one hundred feet from the ground, and made of sticks, and lined with small twigs, leaves and sometimes grass. In *Birds that Hunt and are Hunted*, Miss Blanchan says, "About eighty per cent. of nests found have been in birch trees." This statement must have been based upon observations made in a country where the prevailing trees were birch. Most certainly it would not be justified by observations made in the Middle West, where there are but few birch trees.

In this locality nest building begins in the latter part of March and both birds take part in it. Fresh eggs may be found during the first half of April, and as late as the middle of May. Two or three, rarely four eggs are laid. They present much difference in size and markings; their ground color is white or bluish white, some are entirely unmarked, while others are heavily splashed with many shades of red and brown. So far as I have observed all birds of prey lay but few eggs and this, I think, is a wise provision of Nature. Major Bendire says, "Incubation lasts about four weeks, the male assisting to some extent in the duty, as well as providing his mate with food on the nest. The eggs are deposited at intervals of about two days." But my friend, Judge R. W. McBride, a most careful observer, says, "My observation would indicate that the period of incubation covers about eighteen days. Out of twenty-five sets of eggs that I have taken, stages of incubation average as follows: Fresh April 5; slightly incubated, April 8; incubation advanced one-half, April 12; nearly ready to hatch, April 17; young just hatched, April 21."

Generally the red-tailed hawk does not take its food by pursuit, but rather by waiting and watching for it from some elevated position and then dashing through the air and catching it with its "sharp curved claws, the most deadly weapons to be found in any bird's armament." At Buzzard's Roost, one of them that caught some of our fowls was in the habit of perching high up on the dead limb of a sycamore tree and watching for them to come out into the open, and then dashing upon them, and he never missed his prey. This was provoking and almost tempted us to get a gun and shoot the marauder. Dr. Fisher says in extenuation of the red-tail's conduct that while they do occasionally eat poultry, the quantity is so small in comparison to the vast numbers of destructive rodents consumed that it is hardly worth mentioning, the proportion being sixty-six per cent. of injurious animals to not more than seven per cent of poultry. He adds: "How are we to account for this hatred against birds of prey by the class of men who should be first to clamor for their protection? Since they know that hawks and owls attack poultry, they do not stop to think that the depredations may be made by a few

species, but make sweeping condemnation of the whole family. The reasoning is much the same as that of an Indian or frontiersman, who, being wronged by one individual, condemns the whole race. It would be just as rational to take the standard for the human race from highwaymen and pirates as to judge all hawks by the deeds of a few. Even when the industrious hawks are observed beating tirelessly back and forth over the harvest fields and meadows, or the owls are seen at dusk flying silently about the nurseries and orchards, busily engaged in hunting the voracious rodents which destroy alike the grain, produce, young trees and eggs of birds, the curse of the majority of the farmers and sportsmen go with them, and their total extinction would be welcomed. How often are the services rendered to man misunderstood through ignorance! The birds of prey, the majority of which labor day and night to destroy the enemies of husbandmen, are persecuted unceasingly, while that gigantic fraud—the house cat—is petted and fed and given shelter from which it may emerge in the evening to spread destruction among the feathered tribe. The difference between the two can be summed up in a few words—only three or four birds of prey hunt birds when they can procure rodents for food, while the cat seldom touches mice if she can procure birds or young poultry. A cat has been known to kill twenty young chickens in a day, which is more than most raptorial birds destroy in a lifetime. * * * Hawks and owls are complementary to each other. While hawks hunt by day and keep diurnal pests in check, owls, whose eyesight is keenest during the twilight and early dawn, capture nocturnal species which the former are not apt to obtain.”

The flight of this hawk is strong and vigorous. In soaring and sailing it is scarcely surpassed by the turkey vulture. In the autumn of 1902 I spent two weeks at Buzzard's Roost, taking a vacation and studying the birds. Among the most interesting sights that I witnessed were several afternoon flights of these hawks, the number of birds ranging from six to ten. When first seen they would be coming down Fall Creek, just over the cleared bottom land. Presently, before reaching Buzzard's Roost, they would turn towards the timber and commence mounting higher and higher in spiral form, seemingly

without motion of the wings, until they were almost out of sight in the azure blue of the sky. Others have seen them do this and have reported that when they had reached their highest flight, like a night hawk, they would suddenly drop downward until near the earth and then resume their ordinary flight, but I have never seen this done. This hawk does not sing, nor do I know of any species of hawk that does. Their principal call note, generally uttered during their aerial gyrations, consists of a shrill far-reaching "ke-ah" repeated at short intervals. Indeed, the red-tail may be called a screamer.



m col. F. M. Woodruff.

AMERICAN SPARROW HAWK.
 $\frac{3}{4}$ Life size.

Copyright by
Nature Study Pub. Co., 1898, Chicago.

CHAPTER VI.

January 29—February 4.

THE AMERICAN SPARROW HAWK.

Order—Raptores

Suborder—Falcones

Family—Falconidæ

Sub-family—Falconinæ

Genus—Falco

Subgenus—Tinnunculus

Species—Falco sparverius

Length—8.75 to 12.00; wing, 6.55 to 8.15; tail, 4.20 to 5.60.

Migration—North, February; south, November.

"The wild hawk's shadow fleets across the grass,
Its softened gray the softened green outvying;
And fair scenes, fairer grow while they pass,
As breezes freshen when the day is dying."

There are about a dozen species and sub-species of sparrow hawks. Two of them, the Cuban and American, are found in North America. West of the Rocky Mountains a slightly different sub-species of the American is found, known as the Desert sparrow hawk; and in Lower California still another called the St. Lucas sparrow hawk. Next to the Cuban sparrow hawk, the American is the smallest and it is the handsomest of our diurnal raptores.

The bill of the adult male of this species is short, blue, tipped with black; iris of the eye, ochraceous-yellow; top of head, slaty-blue with a chestnut patch in the middle of the crown; crescent back of neck, black; hind neck, back and rump, light rufous; wing coverts, ashy-blue with or without black spots;

wing primaries nearly black; tail, dark rufous with broad black band near the end and outer feathers and tips white; throat and upper neck on sides, white with two black bands, one in front and one in rear of the eyes; below varying from white to deep rufous, with or without spots; legs and feet long, strong and of grayish color; claws, black. The adult female in appearance is like the male, except that the back, wing and tail coverts are barred with black, and the hinder parts are more or less heavily streaked with dark ochraceous buff.

The range of this hawk extends over nearly the entire North American continent. It has been identified as far north as the Great Slave Lake, in north latitude sixty-two degrees. It is known to be a summer resident of Newfoundland, Nova Scotia and New Brunswick and the more southern portions of the Dominion of Canada. In Indiana they are not numerous in the winter. I have found them at Buzzard's Roost the last of January. As a rule they winter from New York and Indiana southward to northern South America. They breed from Florida and the Gulf Coast to the shores of the Hudson Bay. Pairing time is from February to June, according to latitude. It is believed that they remain mated for life.

In the United States nidification begins from the middle of April to the middle of May. The usual nesting site is in a natural or artificial hole in a tree. Frequently they are found in the deserted nesting hole of a woodpecker. A pair of them have nested at Somerleaze for many years in a cavity near the top of a very high sugar maple tree and this has afforded me a good opportunity to study their habits. From three to seven eggs constitute a clutch. In his Life Histories of North American Birds, Major Bendire says: "The ground color of these eggs ranges from a pure clear white in a few instances to pale buff or cream color in the majority of cases, and to a bright cinnamon rufous in a few others. They are spotted, blotched, marbled and sprinkled with different shades of walnut brown, chestnut, cinnamon rufous and ochraceous in various patterns." Incubation lasts about three weeks and both birds assist in it. A watchful care is kept over the nest and young. I have noticed that during this time they permit no other birds to come near their nesting tree. Once, when tramping, I dis-

covered one of their nests and the parent birds discovered me. They made a ferocious attack upon me, and flew around me with great fierceness, crying, "killy, killy, killy," and I think they would have "killed" me if they could have done so.

As is shown in the illustration, this hawk stands in a very erect position—more so than any other bird with which I am acquainted. Its only note or call, so far as I am advised, is, "killy-killy-killy," and this is uttered when it is in flight. At times they seem to become much excited and make much noise with this call. Because of this some people know it as the killy hawk; others as the mouse hawk because of the great number of mice destroyed by them. One thing is sure, and that is, that it ought not to have been named the sparrow hawk, for the reason that the name is misleading and well calculated to create a prejudice against it. As has been well suggested, it would have been better to have named it the grasshopper hawk, since the greater portion of its food consists of grasshoppers. It is one of the farmer's best friends and should be protected for the good it does.

Dr. A. K. Fisher of the United States Department of Agriculture says that the subject of the food of the sparrow hawk is one of great interest, and considered in its economic bearings, is one that should be carefully studied. He says that it "is almost exclusively insectivorous, except when insect food is difficult to obtain. In localities where grasshoppers and crickets are abundant, these hawks congregate, often in moderate-sized flocks, and gorge themselves continuously. Rarely do they touch any other food until, either by the advancing season or other natural causes, the grasshopper crop is so lessened that their hunger cannot be appeased without undue exertion." He adds that they are also very fond of other destructive forms of life such as beetles, spiders, shrews, mice and snakes, and that sometimes they catch small birds. Prof. King, who examined the stomachs of seven sparrow hawks, says: "Two of them had eaten two mice; four, twenty-five grasshoppers; three, twenty-five crickets; one, six beetles; one, five moths, and one, two hairy caterpillars. One was seen to take a young robin from the nest, and one to capture another bird not identified."

The flight of the sparrow hawk is short and irregular, darting here and there, and it often suspends itself in midair in a hovering attitude, much like a humming bird suspends itself before a flower. In both instances the bird is searching for food. I think it may be correctly said that, as a rule, the sparrow hawk discovers its food while in flight. This is most certainly true of the pair at Somerleaze, which I have studied very carefully. The tree in which they nest is in a small field about two hundred yards to the east of the cottage. Rarely have I seen them launching from it into the air over that field and pouncing upon their prey, but often I have seen them fly over the cottage to the west fields and there hover in midair watching for their prey and suddenly dropping upon it. On one occasion, when on my way to the railroad station, I saw one hover over a meadow for several minutes and then suddenly and abruptly fly to another field. It had scarcely commenced its hovering, when it dropped from an altitude of about one hundred feet and caught a field mouse. Most certainly they must have telescopic eyes, for without them they could not see grasshoppers and other like small objects from such great heights.

THE
MUSEUM
OF
NATURAL
HISTORY



GREAT HORNED OWL.
(*Bubo virginianus*).
 $\frac{2}{3}$ Life-size

CHAPTER VII.

February 5—February 11.

THE GREAT HORNED OWL.

Order—Raptores

Suborder—Striges

Family—Bubonidæ

Genus—Bubo

Species—Bubo virginianus

Length—18.00 to 25.00; wing, 14.50 to 16.00; tail, 8.25 to 9.00.

Permanent Resident.

"In the hollow tree, in the gray old tower,
The spectre owl doth dwell;
Dull, hated, despised in the sunshine hour,
But at dusk, he's abroad and well!
Not a bird of the forest ere mates with him;
All mock him outright by day;
But at night when the woods grow still and dim,
The boldest will shrink away:
O, when the night falls and roost the fowl,
Then, then, is the reign of the horned owl."

The family Bubonidæ, composed of the owls, has in it about two hundred species, found in different parts of the world. Ten of them have been identified in the Middle States. They are distinguished by their nocturnal habits; their strong ear-like tufts which correspond to the ears of quadrupeds; their large heads; their large, round, full and glaring eyes, set widely apart and partially encircled in a disk of feathers; a hooked bill turned downward so that it resembles the nose of the human face; their strong talons, and their erect position. They all have the outer toe capable of turning either to the front or

rear on the perch, and this enables them to grasp their prey with great certainty. They are birds of prey, usually are night prowlers, and like the cat surprise their victims by watchfulness and stealth. In this they are much assisted by their plumage which is singularly soft and downy, and the construction of their wing feathers of which Ernest Ingersoll says, "the stems and delicate horny sprays constituting the vanes of the feathers are not rigid and firmly hooked together, but are slender, loose, and flexible, so that their flight is noiseless. There is no swish or whist of wings as they pass, yet they have great speed and agility in the air, though lacking power for long sustained effort which is not required in their manner of life." Another interesting fact stated by Mr. Ingersoll is that "the owls not only have the internal part of the ear relatively of great size, but the external opening is ample, and so developed by a ridge of skin and a growth of enclosing feathers as really to form a conch or external ear not elsewhere to be seen among the birds."

The bill of the adult male great horned owl is large, black and strong; eyes very large and golden yellow; the horns are about three inches long and very broad, the feathers composing them being edged with bright tawny; face rusty, bounded on each side with black; space between the eyes and bill whitish; upper parts finely pencilled with dusky on a tawny whitish ground; tail rounded, extending about an inch beyond the tips of the wings, crossed with six or seven bars of brown, and variegated or marbled with brown and tawny; chin pure white, under that a band of brown, succeeded by another one of white; whole lower parts elegantly marked with numerous transverse bars of dusky, on a bright tawny ground, thinly interspersed with white; vent pale yellow ochre, barred with narrow lines of brown; legs short, heavy and well covered with feathers of a pale brown color; talons very strong, and of a blue black color. The adult female is larger than the male, but in general appearance they are alike. Except the great gray owl, they are the largest and most powerful of the American owls.

They are residents and breed throughout most of their range, which extends throughout eastern North America,

northward to Labrador, westward to the Great Plains and southward through eastern Mexico to Costa Rica. My notebook shows that I found them at Buzzard's Roost, January 18, 1903, and January 1, 1905. I was out there and the gardener told me that one of them was hooting that morning near the cottage and that it came into the yard quite frequently, as he thought, to catch rats. The dense forest there makes a favorite residence for them. Wilson in his *American Ornithology* tells us that "along the mountainous shores of the Ohio, and amidst the deep forest of Indiana, alone, and reposing in the woods, this ghastly watchman frequently warned me of the approach of morning, and amused me with his singular exclamations; sometimes sweeping down and around my fire, uttering a loud and sudden Waugh O! Waugh O! sufficient to have alarmed a whole garrison."

They are early breeders. Mating begins about the middle of January and continues throughout the month. Throughout the greater part of their range the laying of eggs begins in February and occasionally in the latter part of January. A favorite place for their nest is in the hollow of a tree. At Buzzard's Roost a pair of them have such a nest near the cabins. Very frequently, however, they repair and use the abandoned nests of crows and hawks. As a rule they lay two or three eggs—sometimes as many as five. The eggs about the size of a hen's egg, are white in color and round in shape. Incubation is attended to by the female and lasts from twenty-one to twenty-eight days. It is said that they regard each other with a devotion that is rarely met with among favored creatures and that they will willingly risk not only their liberty but their lives for their young.

"Nor lovely the bird, nor his ghastly mate;
They are each unto each a pride,—
Thrice fonder, perhaps, since a strange, dark fate
Hath rent them from all beside."

These owls have several call notes. Some of which are very harsh to the ear. One of these is a cat-like squall or cry; another is a series of yelps, similar to the barking of a dog. The common call, however, is a far-reaching "to-hoot, to-hoot, to-hoot, to-hoo-ah."

Some years ago when we first went to Somerleaze to spend our summers, I constructed a rustic seat around a hop-hornbeam tree which stood upon the front lawn. I spent many evenings under this tree, giving attention to the things that were in flight at night. Across our neighbor's fields to the northwest was a thickly wooded marsh and there I would first hear the call of one of these owls, "to-hoot, to-hoot, to-hoo, to-hoo-ah." Gradually it would come nearer. Presently it could be heard from the great cup or burr oak just west of the farm house, and then from the wood lot just southeast of it. In the solemn quiet of the night in the country his hoot was anything but cheering. Years have passed, the marsh has been converted into a cornfield, the hop-hornbeam, not used to the open, died, and the call of the hoot owl is seldom heard from the porch where I now spend my summer evenings listening to "the insect orchestra shrilling out its twilight overture" and the whip-poor-wills and screech owls. The dense woods at Buzzard's Roost is a favorite place for these owls, and quite frequently one of them alights on the ridge board of the cottage at night and favors the gardener with his "to-hoot, to-hoot, to-hoo, to-hoo-ah."

These birds do much good and should be protected. They are great destroyers of rodents, such as gophers, ground squirrels, rabbits, muskrats, house rats and mice and the larger moths, beetles and grasshoppers. What they eat is determined easily because of the fact that they do not masticate their food but swallow it whole or in large shreds. In the process of digestion that which is indigestible is regurgitated in pellets. Gilbert White of Selborne, an English clergyman and naturalist of the eighteenth century, directed the attention of the public to this fact. Near by the parish house stood a tree with a cavity in which lived a pair of owls. He noticed at the roots of this tree a large quantity of pellets which had been regurgitated by the owls. He made a careful examination of them and discovered that the owls had destroyed large numbers of mice and other rodents. Since then his observations have been confirmed by many scientists. In the city of Washington two hundred pellets were taken from beneath the nest of an owl and examined and found to contain 454 skulls, of which 225

were meadow mice, 2 pine mice, 179 house mice, 20 rats, 6 jumping mice, 20 shrews, 1 star-nosed mole and 1 English sparrow. An interesting fact in this connection is that whenever provender is plenty these owls often content themselves with simply eating the brains of their victims. Mr. Charles Dury records that the remains of 113 Norway rats, most of them with their heads split open and the brains removed, were found in and about a nest of barn owls, which was in a sycamore stub near a farmer's lawn.

The nestlings of these owls are voracious eaters and it keeps their fond parents busy to supply them with food and this is an additional reason why they are so valuable; and what is true of them in this regard is true of all birds. This fact is not generally appreciated. The number of broods and young vary according to the species and the region in which they live. Many species average from two to three broods of three to five young every season. The young, from the time the eggs are hatched until the last offspring has left the nest, demand the most constant and untiring industry on the part of the parents. Meals are very frequent, often averaging one every two minutes. At first the nestlings consume more than their own weight in food each day, and make daily gain in weight of twenty to fifty per cent. At this time they appear to consist of little else than mouth and stomach and spend nearly all their waking moments eating. The total amount of the material required to satisfy their appetites is astonishing, and when the greater portion of that material consists of injurious animal life, as it does in the case of these owls, it is readily seen why they are so valuable.

Figure 1 is a 2D scatter plot representing the spatial distribution of 1000 simulated data points. The horizontal axis (x-axis) and vertical axis (y-axis) both range from 0 to 1000, with major tick marks every 200 units. The data points are represented by small black dots. They are distributed across the entire plot area, but there is a noticeable concentration or higher density of points in the upper right quadrant, specifically between x=600-800 and y=600-800. The lower left quadrant appears less populated.



SCREECH OWL.
(*Megascops asio*).
About $\frac{2}{3}$ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER VIII.

February 12—February 18.

THE SCREECH OWL.

Order—Raptores

Suborder—Striges

Family—Bubonidæ

Genus—Megascops

Species—Megascops asio

Length—6.50 to 10.00; wing, 5.60 to 7.10; tail, 3.00 to 3.70.

Permanent Resident.

"The night owl in the thicket wails

In tones of melancholy,

As if bemoaning in its age

Its years of youthful folly."

Chapman and Reed in their Color Key to North American Birds describe thirteen species of screech owls. Megascops asio is the only one of these that is found in the Middle West. The plumage of this owl is dichromatic, that is, it has two distinct variations of color, the red or rufous and the gray. This peculiarity does not depend upon sex, age, season or condition. Young birds with both phases of color are often found in the same nest, and sometimes the male is of one color and the female of the other, and vice versa. Those with the red phase are rufous above and streaked with shaft lines of black. The scapular feathers show considerable white; there is also more or less white in some individuals above the eyes. Underneath the color is white overlaid with rufous, generally in bars. Those of the gray phase have a brownish gray appearance above, with markings of black and white almost identical with those of the red phase. Underneath they are gray and

white and are profusely marked with black shaft lines and narrow black or brown bars. The wings and tail in both phases are barred. The seasons bring no change in the color of the plumage. It is very soft and fluffy. The ear tufts are erectile and about an inch long. The legs and feet are feathered nearly to the ends of the toes. The bill is of a brown color and almost hidden by feathers and bristles. The eyes are very large with an iris of bright yellow.

The range of this owl extends throughout temperate North America, east of the one hundredth meridian and between parallels thirty-three and forty degrees of north latitude, and they breed wherever they are found. They are known as the mottled owl because of their mottled appearance and the cat owl because of the shape of the head. They are retiring and unobtrusive in their habits, and though abundant, are seldom seen during the greater part of the year. Yet it is the commonest of our owls and the one with which we are most familiar. Wilson, the American ornithologist, kept one of them in his room for several weeks, and says: "Those who have seen this bird in the day can form but an imperfect idea of its activity and even sprightliness, in its proper season of exercise. Throughout the day it was all stillness and gravity, its eyelids half shut, its neck contracted and its head shrunk seemingly into the body, but scarcely was the sun set and twilight began to approach, when its eyes became full and sparkling, like two living globes of fire; it crouched on its perch, reconnoitered every object around with looks of eager fierceness; alighted and fed; stood on the meat with clenched talons, while it tore it in morsels with its bill; flew round the room with the silence of thought, and perching moaned out its melancholy notes, with many lively gesticulations, not at all accordant with the pitiful tone of its ditty, which reminded one of the shivering moanings of a half-frozen puppy."

Mating of these owls begins in the early part of March and it is thought that they mate for life. It is said that it is interesting to watch the love-making of a pair of owls on a moonlight night, as they sit together on the coping of an out-building or the horizontal limb of some giant of the forest. The lady owl looks the picture of demure coyness, as if a little

excited inwardly. But the male owl is very much in earnest; for a moment or two he puffs out his feathers, bows and utters a soft scream, followed by a modified hiss that is full of tender meaning, and then he nudges her with his wings. She opens her eyes very wide and gives him a sidelong glance that may be a hint, for, horrible to relate, from the depths of his interior he instantly brings up a half-digested mouse; and, although she is as full of similar rodents and beetles as she can comfortably hold, she opens her mouth and accepts the fragrant gift with a murmur of satisfaction that speaks volumes of love and thanks. When the dainty morsel has been disposed of they caress each other tenderly for a moment or two, then sit close together, while the process of assimilation is perfected, and then they simultaneously fly away into the moonlight on noiseless wing in search of further prey.

With these owls nidification begins between the middle of April and the first of May. Their favorite places for nesting are the cavities of trees, old squirrel nests and outbuildings. Strictly speaking, they do not build nests. If the nest is in a cavity, the eggs are laid in the bottom of it on such rubbish as naturally accumulates therein. The eggs, four or five of which constitute a clutch, are deposited every two or three days, and are pure white in color, usually oval or nearly globular in shape, and are moderately glossy. Incubation lasts about three weeks. Mr. Lynds Jones says that "Both parents are generally found near the nest, and not infrequently sitting on the eggs at the same time. In a number of instances I have taken the two from well incubated eggs, but have never flushed both of them from a fresh set. Between the interval when the first egg is laid and the set is completed, the male may be found in a hollow tree and cannot be flushed, while the female watches the nest and flushes easily. When incubation begins the male will flush readily for a time, the female, however, remaining. Later both birds must be dislodged by force. If the cavity is large enough to admit of it, both birds will cover the eggs; if, however, it is small, the female covers them and the male either wedges himself down by her side or lies on top of her, and sometimes finds a lodgment somewhere higher up in the hole, which, however, is rarely the case."

These owls are abundant at Buzzard's Roost. The gardener tells me that they have entered through the open window into the upper story of the cottage in search of mice, and that frequently he has found them in the barn. A pair of them have their nest in the cavity of a sycamore on the bank of Fall Creek directly in front of the cottage, and another in a beech snag near the east line of the woodland. At Somerleaze they come with their young to the lawns in July. From then until the snow flies we hear them almost every morning and evening. One often comes to the elm which branches over our back porch, and within twenty feet of where we sleep, makes his "tremulous, wailing whistle." Sometimes it is like the cry of a child and very distressing, but I have never heard them screech. In an article in the Indianapolis News, July 20, 1901, I made mention of this fact, and this inspired my friend, Mr. Wm. A. Wood, to write:

"Thou art an ill named bird, my lady owl,
Who sittest before me on the lonely bough:
Men had less reason e'er to wince or scowl
Had thy sex all such mellow tones as thou.

"The shimmering light from off the winter moon
Falls rich and soft upon the quiet wood,
As rich and soft as thy fond, maternal croon
That warms with sound this snow clad neighborhood.

"The birds that nest in summer mid these trees,
At frost to tropic climes and cheer they go;
But thou dost stay in spite of chilling breeze,
To comfort with thy tender tremolo."

For a long time it was believed that the owls could not see well in the daytime. But later investigations have proved that they see as well as we do at that time and better in the twilight. The query, then, is, why are they not seen in the daytime? There are two answers to this. The first is, that they are despised by all of the other bird families. Whatever differences they may have among themselves, the various families of birds regard the owls as outlaws, and birds of one family will help those of another in fighting their common enemy. If another bird espies one of them, it immediately

gives the alarm and all the other birds of the neighborhood congregate at once and make a common attack upon it. This is especially true of the blue jays and robins. In the second place, it is a wise provision of nature that for all times there should be birds of some kind on guard to keep in abeyance "its destructive forces and so we have the owls, who, with the special sight that is given them, can be on guard at night to destroy the injurious rodents, insects and moths that are out at that time and ready to do mischief."

Scientific investigations which have been made show that these owls are of great value to the farmer and orchardist. Dr. A. K. Fisher, in his report upon the Hawks and Owls from the Standpoint of the Farmer, says: "Of twenty-five stomachs examined of the screech owl, birds were found in about 15 per cent. Fully one-third of these consisted of English sparrows, and a large proportion of the rest were ground-dwelling sparrows, which feed largely on seeds and are of little economic importance. Among insects, grasshoppers, crickets, beetles and cutworms are most often eaten. As many as fifty grasshoppers have been found in one stomach, eighteen May beetles in another, and thirteen cutworms in a third. During the warmer parts of the year it is exceptional to find a stomach not well filled with insect remains. Meadow mice, white-footed mice and house mice are the mammals most often taken, while chipmunks, wood rats, flying squirrels and moles are less frequently found. The screech owl is fond of fish and it apparently catches many, especially in winter. At this time it watches near the breathing holes in the ice, and seizes the luckless fish which comes to the surface.* * *

As nearly three-fourths of the owl's food consists of injurious mammals and insects, and only about one-seventh of birds (a large proportion of which are destructive English sparrows), there is no question that this little owl should be carefully protected."



TURKEY VULTURE.

CHAPTER IX.

February 19—February 25.

THE TURKEY VULTURE.

Order—Raptores

Suborder—Sarcorhamphi

Family—Cathartidæ

Genus—Cathartes

Species—Cathartes aura

Length—26.00 to 32.00; wing, 20.00 to 23.00; tail, 11.00 to 12.00.

Migration—North, February; south, October.

"Among the crags, in cavernous deep,
The vulture rears his brood;
Far reaching in his vision's sweep
O'er valley, plain and wood,
And wheresoe'er the quarry lies,
It cannot 'scape his peering eyes.
The traveler from the plain below,
Sees first a speck upon the sky—
Then poised on sweeping wings of woe,
A vulture, bat-like, passes by."

The family Cathartidæ, composed of the American vultures, has in it eight species. Three of these, the California, turkey and black vulture, are found in the United States. The last two of these have been identified in the Middle West. The turkey vulture is commonly called the turkey buzzard. Technically speaking, this is incorrect, since the buzzard is a member of the family falconidæ and not of the family cathartidæ. There is a marked difference between these families. The falcons have a short and powerful beak, the upper mandible

being like a hook, and well fitted for tearing into shreds the fresh flesh upon which they live, so that it can easily be devoured. They also have strong grasping feet with which they can catch and hold their food while it is being torn into shreds. The beak of the vulture is more elongated and not so strong. Their feet are adapted to walking rather than grasping, since they do not catch and hold their food while they devour it. This vulture gets its distinguishing name turkey, from its fancied resemblance to the wild turkey.

The beak of the turkey vulture is about two and a half inches long, and is of a white color; nostrils wide with opening through the beak; eyes dark in some specimens and in others reddish-hazel; head and neck bare, red and carunculated almost to the breast bone; the naked skin of the lower neck is not discernable without removing the plumage which arches over it; the plumage of the upper part of the body is a lustrous black, more or less tinged with brown; the lower parts, lining of the wings, rump and tail coverts, sooty brown with the feathers of the belly and vent hairy; the wings are long and pointed with the ends of the primaries reaching to the end of the tail; the tail is rounded and brownish like the wings; tarsus without feathers, covered with fine scales and whitish; the feet are well adapted to walking and steadying the bird on a large carcass; the toes are united next to the feet by a small membrane, the hind one projects from the foot higher than the others, the middle one is very long and all of them are tipped with short claws. In appearance the sexes are alike. The young are covered with down of a greenish-white color.

The range of the turkey vulture extends north from the Falkland Islands and Patagonia to Saskatchewan and British Columbia and includes the greater portion of the United States. It is very common throughout the south, gradually becoming rarer as it advances northward. East of the Rocky Mountains it is a resident throughout the year from about latitude 46 degrees, and they breed as far north as latitude 56 degrees. In the Middle West they generally begin to appear in February or early in March. A pair of them have been seen at Buzzard's Roost as early as the first week in January. They

mate soon after their arrival from the South and nesting begins about the first of April.

They make no attempt at making a nest, but lay their eggs in the hollow of a tree, stump or log, or on a rock ledge or on the ground. The vulture from which the illustration accompanying this chapter was taken was obtained between the Brazos River and Matagorda Bay. It was found nesting on the ground in an open space beneath a heavy growth of bushes. The old bird, when approached, did not attempt to leave the nest, and to protect her young from harm promptly disgorged the putrid contents of her stomach upon her captor, and they were so offensive that he had to close his nostrils with one hand while he reached for the young bird with the other. This is their only means of defense. From one to three dull white eggs constitute a clutch. They are irregularly blotched, smeared and spotted with various shades of brown. Both birds take part in the incubation, each feeding the other and the young with the disgorged contents of the stomach. Incubation lasts about thirty days, and only one brood is reared in a season. The nest becomes extremely filthy and fetid. A pair of them nested in a stump near the summer home of my deceased friend, Dr. Daniel Thompson, who told me that the stench from the nest could be detected for several yards away from the stump.

The young hiss like a goose when disturbed. Dr. Henry Moore tells me that while he and a friend were exploring a small stream which runs through a gorge at the Shades of Death in Montgomery county, Indiana, they came to a place where there was a fall of about five feet. He jumped down to a rock ledge, but his friend hesitated. Upon alighting he heard a hissing noise and thought it came from a snake. Fearing to move, he sent his companion around the hill so that he might, if possible, discover what it was that was hissing. His companion readily discovered the cause and said to the doctor, "Look behind you under the ledge." He did, and saw two young vultures there which were about half grown. He tells me that great numbers of these birds nest in that locality upon rock ledges and that they have a rookery there. Having never heard a vulture make a noise or call of any kind, I asked if he

had, and he answered that save the hissing of the young, the only noise that he had ever heard was a kind of grunt made by the adult birds when they alight. Professor John Collett, in his Geological Survey of Indiana for 1875, writes interestingly about the weird beauty of the Shades of Death and its buzzard rookery. In closing his sketch he says: "At the 'rookery' all the buzzards living within ten or fifteen miles meet each summer evening for information, converse and mutual assistance. The fact is mentioned as an instance of the social instinct of the bird."

The food of the turkey vulture consists of carrion and this makes of it a filthy bird and accounts for its bare head and neck. In the South they are very numerous and in several of the States are protected because of the good they do as scavengers, and they become quite tame. Whether they discover their food by sight or by scent has been a theme for much controversy. Audubon made experiments for the purpose of answering the question. He says: "I procured a skin of our common deer, entire to the hoofs and stuffed it carefully with dried grass until filled rather above the natural size—suffered the whole to become perfectly dry and as hard as leather—took it to the middle of a large open field, and laid it down upon its back with the legs up and apart, as if the animal were dead and putrid. I then retired a few hundred yards and in the lapse of some minutes a vulture coursing around the field, tolerably high, espied the skin, sailed directly toward it, and alighted within a few yards of it. I ran immediately covered by a large tree, until within about forty yards, and from that place could spy the bird with ease. He approached the skin, looked at it without apparent suspicion, raised his tail and avoided itself freely (as you well know all birds of prey in a wild state generally do before feeding), then approaching the eyes, that were here solid globes of hard, dried and painted clay, attacked first one and then the other, with, however, no further advantage than that of disarranging them. This part was abandoned; the bird walked to the other extremity of the pretended animal, and there, with much exertion, tore the stitches apart, until much fodder and hay were pulled out; but no flesh could the bird find or smell; he was intent on

finding some where none existed, and, after reiterated efforts, all useless, he took flight, coursed around the field, when, suddenly turning and falling, I saw him kill a small garter snake and swallow it in an instant. The vulture rose again, sailed about and passed several times quite low over the stuffed deer skin, as if loath to abandon so good looking a prey. Judge of my feelings when I plainly saw that the vulture, which could not discover through its extraordinary sense of smell that no flesh, either fresh or putrid, existed about that skin, could at a glance see a snake scarcely as large as a man's finger, alive, and destitute of odor, hundreds of yards distant. I concluded that, at all events, his ocular powers were much better than his sense of smell." And this, I think, is the more generally accepted view. A strong argument in favor of it is the fact that often the vultures discover a carcass so soon after it is dead—too soon for it to give off any stench. It is a known fact that, directly a camel or other beast of burden drops dead, as a caravan to which it belongs is making its way across the desert, vultures of one sort or another appear, often in considerable numbers, though none had before been observed by the ordinary traveler, and speedily devour the carcass over which they are gathered together.

At Buzzard's Roost these vultures nest in the snag of a tree, and as of old, they roost in the midst of the woods—not on the great old tulip tree—but on others nearby where that stood. Since I have known the place, I have seldom gone there during the season for them, but that I have found them sailing in midair over the place. Again and again have I watched them soaring to an immense height, and then sailing in great circles without the flap of a wing, and seemingly without any effort of the body, and in amazement I have wondered how it was done. To me this is one of the most puzzling and most beautiful sights in nature. One time when I was out there a heavy thunder storm passed over the place. After it had passed, it cleared away and the sun shone most beautifully. Looking to the west from the cottage, I noticed a large dark object on the projecting limb of a tree. A more careful observation developed the fact that it was a turkey vulture with half outstretched wings. I concluded that he was drying him-

self—at any rate he maintained the position unchanged for a long time, and then sailed away. Since then I have learned that such is their habit. Wilson says “they may be seen in a summer’s morning, spreading out their wings to the rising sun, and remaining in that posture for a considerable time.” He thinks that this habit “is attended with the same exhilarating effect that an exposure to the air of the morning has on the frame of one just risen from repose.”



LOGGERHEAD SHRIKE.

CHAPTER X.

February 26—March 4.

THE LOGGERHEAD SHRIKE.

Order—Passeres

Suborder—Oscines

Family—Laniidæ

Genus—Lanius

Species—Lanius ludovicianus

Length—8.50 to 9.50; wing, 3.75 to 4.10; tail, 3.65 to 4.25.

Migration—North, March; south, November.

The family Laniidæ is composed of the shrikes of which there are about two hundred species. Most of these are confined to the Old World. In North America we have only two species, namely, the northern shrike, *lanius borealis*, and the loggerhead shrike, *lanius ludovicianus*. They are medium-sized rapacious birds with wandering habits. They have hooked or hawk-like bills and remarkable eyesight. Their call notes are harsh and unmusical. The northern, as its name indicates, is a bird of the far north, and the loggerhead is a bird of the south. When the first comes to the Middle West about the first of November, the second will have gone to the south, and in March when the first is leaving for the far north, the other will be returning from the south. As has been well said, "In case of species so nearly identical as the northern and loggerhead shrike, it would be interesting to know wherein consists that subtle temperamental distinction that drives them to such diverse latitudes north and south."

In appearance both birds are much alike—so much so that a picture illustrating one might be used to illustrate the other. Indeed, the illustration accompanying this chapter has been used in one of our best bird books to illustrate the chapter on the northern shrike. The loggerhead, however, differs from the northern in size, being at least one inch shorter, and in color, being much darker on the upper parts, and in having the frontlet black.

The bill of the loggerhead shrike is black, moderately long, with culmen curved and the tip hooked; lores black, connected by narrow black line on the forehead at the base of the bill; ear coverts, black; iris, hazel; upper parts, including lesser coverts, bluish-gray; wings black, with secondaries and short primaries tipped with white and white patch at the base of the primaries; tail black, the outer web of the outside feathers, and the tips of others, white; under parts, white; feet black, small and sparrow-like. In appearance the sexes are alike, but the female is the smallest of the two. Both are beautiful birds.

The range of the loggerhead shrike extends from the Gulf of Mexico north on the Atlantic coast to New Jersey, and in the interior to the Great Lakes, and west to the Great Plains. It winters south of southern Indiana and Illinois and Missouri. Nidification begins in April. I find that some of the books say that the nest is usually found on the outer limbs of trees, often from fifteen to thirty feet from the ground, and that a thorn tree is the favorite place for it. The one in the illustration was taken under the direction of Mr. F. M. Woodruff about fourteen miles from Chicago. It was found in the corner of an old osage orange hedge about eight feet from the ground. In describing how the photograph was obtained he says: "It took considerable time and patience to build up a platform of fence boards and old boxes to enable the photographer to do his work. The half-eaten body of a young garter snake was found about midway between the upper surface of the nest and the limb above, where it had been hung for future use." I have most frequently found them in thorn bushes in the fence corners. The nest is a rough, shabby affair, generally composed of twigs, strips of bark, fine roots and grass,

and is lined with grass and feathers. The eggs, three to six in number, are a dull white, thickly spotted, chiefly at the large end, with brown and lilac. The male takes no part in incubation, but during the time is very attentive to the female and carries much food to her. Incubation lasts about twenty days. Both the male and female are much devoted to their young and are active in feeding them. The young leave the nest in twelve to fifteen days. Then the entire family may be seen having a good time feeding together—a pretty sight to witness.

In its habits of life the loggerhead shrike is a solitary bird. Year after year a pair of them may be found in the same locality. In my tramps I always know where to find a pair of them, and except two times I have never seen more than a pair of them at the same time. So far as I have observed, they are most frequently found along fence rows and not infrequently by the roadside, especially if the fence be an old rail one with its corners grown up in bushes and briars. There they will fly ahead of the traveler from panel to panel for some distance, and then, like the mourning dove, make a circuit and fly back to the starting point. For several years I have observed a pair of them doing this along the highway leading from the interurban station to Buzzard's Roost, and the highway leading from the railway station to Somerleaze. In flight they move along evenly, close to the ground, with heads up and with a very quick flapping of the wings.

I find that bird writers, as a rule, say that this shrike has not the gift of song, and this accords with my observations, and I have watched them carefully. But Mrs. Olive Thorne Miller, one of our most careful investigators of bird life, in giving an account of one that she had watched and was studying, says: "In a few moments, when I had become quiet, he went to the nest, and sitting there on the edge, hidden from my view, he condescended to sing, a low, sweet song, truly musical, though simple in construction, being merely a single clear note followed by a trill several tones higher. After delivering this attractive little aria a dozen or more times, he flew out of the tree and over my head, and sang no more." It is conceded, however, that the northern shrike does sing, and

of this fact I can bear witness. I shall not forget when I first heard one of them sing, and his song was a delightful one. It was in March. I was on my way to Buzzard's Roost for an outing. Upon alighting from the interurban car, to my surprise and pleasure, I heard the warbling notes of a bird. I looked about me to ascertain whence it came, and in the topmost branch of a large pear tree which stood nearby was a northern shrike, and how happy he seemed to be. I fear he was recounting in song all the death and destruction he had caused the past winter, and rejoicing in the fact that he soon was to be off to other fields of carnage.

I have just accused the northern shrike of being a bird of carnage, and of this there can be no doubt, for I have been an eye witness to the fact. But is the same true of the loggerhead shrike? From my own observations I can not affirm that it is. In almost all of the books on birds I find it recorded that the shrikes, without distinction, have the strange habit of catching large insects, small birds and mammals and impaling them upon thorns, wire barbs and other projecting points, and in doing so that they catch and impale many more than they use. In other words, that they do it malevolently—and this gives them their name of Butcher Bird. Mrs. Miller, however, after devoting a good portion of one summer to making observations of them, both in the thorn tree and on a barbed wire fence, says, "In fact, I was never able to find the smallest evidence that the bird ever does impale anything, and the St. Albans ornithologist adds his testimony that he has often examined the haunts of this bird, but has never found anything impaled. And a correspondent in Vermont writes me that he has watched the shrike for twenty years on purpose to see this performance, and in all that time, he saw but three instances, one being a field mouse, and the other two English sparrows."

There may be instances where the loggerhead shrike does do this, but I am of the opinion that they are exceptional. A friend of mine told me of an instance which confirms the fact that they destroy many field mice, and probably the fact that they impale them. He and his father were shucking corn out of the shock. Near by was an osage orange hedge

and a large wild cherry tree. From the tree, a shrike flew with unerring certainty to where they were shucking, eleven times and each time caught and carried away a mouse. My friend, Walter Campbell, a colored man, who formerly lived in the south tells me that the colored people down there calls the shrike the Mouse Hawk. And this confirms Wilson, the American ornithologist, when he says it "inhabits the rice plantations of Carolina and Georgia, where it is protected for its usefulness in destroying mice." He adds, "It sits for hours together, on the fence, beside the stacks of rice, watching like a cat; and as soon as it perceives a mouse darts on it like a hawk." It is with us when there is an abundance of grasshoppers, beetles and other large insects and it destroys many of these. It may be regarded as a very useful bird because of the great quantities of these which it destroys.



KINGFISHER.
(*Ceryle alcyon*).
♂ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XI.

March 5—March 11.

THE BELTED KINGFISHER.

Order—Coccyges

Suborder—Alcyones

Family—Alcedinidæ

Genus—Ceryle

Sub-genus—Streptoceryle

Species—Ceryle alcyon

Length—13.50 to 14.50; wing, 9.10 to 9.50; tail, 3.80 to 4.30.

Migration—North, March; South, November.

“O’er the river’s brink on a summer’s day,
Where lingering the shadows love to play,
On an overhanging branch sits he
And waits and watches patiently,
Until with his ever restless eye
He sees a silvery fish swim by.
Then darting into the river’s flow,
Like an arrow from an archer’s bow,
With a daring dash and splash of spray
He seizes hold of his finny prey
And flings a wild laugh to the skies,
As he mounts above with the shining prize.”

The family Alcedinidæ has in it about one hundred and eighty species of kingfishers. A majority of them are found in the Malay Archipelago. Only eight of them are found in America, and only two of these are found in the United States, namely: the Belted Kingfisher and the Texas Kingfisher. This family of birds have a stout long bill, short legs, small feet, three toes in front and one behind, and the third and fourth

toes are jointed. The American species are fish eaters and are seldom found far from the water.

The bill of the adult male belted kingfisher is two inches long; heavy, sharp pointed and of a dark-brown color; white speck in front of the eye; iris of the eye, crimson-brown; head large and heavy with prominent crest and grayish blue to the nape; wings and tail grayish blue, minutely speckled and marked with broken bands of white; throat white, this color passing on to the sides of the neck and nearly meeting on the back of it; band across the breast and sides, bluish-gray; lower breast and belly, white. The legs are very short and weak; feet small with three toes in front and one in the rear; toes syndactyle, that is, the inner and middle ones are united to the second joint. The adult female is similar to the male, except that the sides and the bands on the belly are rufous. Their bodies, like those of the water fowl, are covered with down which keeps them warm, and their plumage is oily, thus admirably adapting them to the life they live and to their pursuit of fishing.

The range of the belted kingfisher extends from Panama and the West Indies to the Arctic Ocean, and they breed throughout their range northward from Florida and Texas. In the northern part of their range they are summer residents, but many of them winter in some of the New England States, as well as in Oregon and Washington on the Pacific coast. Their remaining through the winter depends much upon whether they can find open water in which to fish.

Very early after they come north they prepare to make their nest, which, as a rule, is made at the end of a tunnel bored into the perpendicular bank of the stream, pond or lake from which they get their food. The excavation is made by both the male and female working alternately. In making the nest, the birds use their beaks and feet. The excavation is circular in form and averages about four inches in diameter and varies in length from four to fifteen feet, according to the nature of the soil. Generally it ascends slightly and runs perfectly straight for the entire distance. Occasionally, however, it diverges at different angles, at various distances from the entrance to the hole. The nesting chamber

at the farther end of the excavation is dome-shaped and usually from eight to ten inches in diameter. The time required in making the excavation varies from a few days to two or three weeks, the time depending largely upon the character of the soil in which the excavation is made. Five to eight glossy white translucent eggs are laid, sometimes on the bare soil, but often on the fish bones, which being indigestible are thrown up in pellets by the birds; and, in any case, before incubation is completed these rejectments accumulate so as to form a cup-shaped structure that increases in bulk after the young are hatched and which with the decaying fish, brought for their food, soon becomes a fetid mass. Incubation lasts about sixteen days, the male taking no part in it except that he is very attentive to the female and supplies her with food. Frequently he makes a shallow second excavation close to the first so that he may be near his mate. The young are hatched without feathers, are very helpless, and remain in the nest for several weeks, and are fed by both parents who are very devoted to them.

Mr. Ernest Seton Thompson has aptly entitled his picture of the belted kingfisher as the "Lone Fisherman." Nothing is truer than that if a person would have good luck in fishing, he must not take a crowd with him; a small, quiet company is more desirable. Indeed, he who goes alone to the secluded places of a stream with his rod, reel and line is the true Izaak Walton, and the one who, as a rule, will have the best luck. And this is why the belted kingfisher is a "lone fisherman." The principal part of his food consists of fish, and in obtaining it a pair of them will secure a portion of a water course, lake or sea shore as their fishing grounds. The Fall Creek front at Buzzard's Roost is one of these fisheries. The birds nest just below it in what is known as the Rolling Bank. In season a pair of kingfishers may be seen plying their avocation of fishing in the stream above and below the nest. When fishing the bird alights upon the naked limb of a tree, as is shown in the illustration and with down-turned head watches for the fish in the water below. Espying one, he darts down into the water, catches it with his bill, and he usually has good luck. Having caught his

fish he returns to his perch with great exultation to devour it, or to the nest to feed it to his spouse or their young.

The flight of the kingfisher consists of a few flaps of the wings, followed by a glide. Sometimes he pauses and seems to stand upon his feet and beat the air with his wings, as a sparrow hawk does in hovering over a meadow. In this way he occasionally stops in his flight over a stream and watches for his food. Mr. Selim H. Peabody in his *Book of Birds*, in giving an account of the kingfisher, says: "His sight is very keen, and he finds his prey even in the turbid rapids of a waterfall. He knows, too, how to take a position which will make the best of the sunshine. One sunny afternoon I was observing a kingfisher, which sat upon a naked limb of an oak, overlooking the water. For a long time the bird saw nothing, and did not move. Presently he left his perch, and flew along the margin of the lake rather in the direction of the sun. After going a few rods he stopped, turned his back to the sun, and for a few seconds stood balanced on his wings, and looked intently into the water. Then he turned, went on a few rods farther, again turned his back to the sun, repeated his careful gaze, and again went on. At the third or fourth pause, he spied a fish, and dropped upon it like an arrow. At each pause he placed himself in the air over the water, so that the reflection from the surface would be turned away from him." Sometimes his flight is very high in the air, so high that he can not be seen with the naked eye, and one only knows that he is passing over by the rattling noise which he makes. He is not gifted with song, but is a noisy bird. The harsh noise made by him is much like that made by a watchman's whistle, and not at all pleasing.

The kingfisher has been the subject of many legends. One of these is that having been originally a plain, gray bird, it acquired its bright colors by flying towards the sun on its liberation from Noah's ark, when its upper surface assumed the hue of the sky above and its lower plumage was scorched by the heat of the setting orb to the tint it now bears. It was believed by the ancients that the kingfisher was a charmed bird, and this belief is yet retained by some people.

It is said that some of the Asiatic nations still wear its skin about their persons as a protection against moral and physical evils. Its feathers are used as love-charms, and it is believed that if its body is evenly fixed upon a pivot it will turn its head to the north like the magnetic needle does. It was also believed that its dried body would avert thunderbolts, and if kept in a wardrobe it would preserve the woolen stuffs from the moths.

From mythology we learn that Ceyx was the son of Hesperus and Halcyone, his wife, was the daughter of Aeolus. In the death of his brother, Ceyx met with a great loss and in his distress determined on a voyage to Charos to consult the oracle Apollo. This grieved Halcyone very much and she tried to dissuade him from going by telling him of the violence of the winds which he would encounter. He persisted in going, and as predicted, his life was lost in the storm. In the meantime Halcyone, ignorant of his loss, counted the days till her husband's promised return. She prayed incessantly that he might be safe. The goddess to whom she prayed, at length could not bear any longer to be pleaded with for one already dead. She directed Somnus to send a vision to Halcyone in her sleep, and make known to her the death of Ceyx. Somnus delegated the doing of it to his son Morpheus, who flew to the Hæmonian city where Halcyone was asleep, and assuming the form of Ceyx, with tears in his eyes, bent over the bed and said to Halcyone, "Do you recognize your Ceyx, unhappy wife, or has death, too, changed my vision? Behold me, know me, your husband's shadow instead of himself. Your prayers availed me nothing. I am dead." She wept, groaned, stretched out her arms in her sleep and tried to embrace his body, but grasped only the air. She cried, "This it was that my presaging mind foreboded, when I implored him not to leave me, to trust himself to the waves. O, how I wish, since thou wouldst go, thou hadst taken me with thee! It would have been far better. Then I should have no remnant of life to spend without thee, nor a separate death to die." It was now morning. She went to the seashore, and sought the spot where she last saw Ceyx, and looking out over the sea discerned an indistinct object floating

upon the water. Borne by the waves, it came nearer. Now it approaches the shore. It is her husband, and in her agony she exclaims, "O, dearest husband, is it thus you return to me?" She leaped from the shore and with wings produced on the instant, flew to him and enfolded his bloodless body with her new formed wings and tried to kiss him with her horny beak. By the pitying gods both of them were changed into birds. They mated and Halcyone for fourteen days brooded over her nest which floated upon the sea. Aeolus guarded the winds and kept them from disturbing the deep. And this is the fabled story of the origin of the belted kingfisher, a member of the family Alcedinidæ, and of Halcyon days, a name given by the ancients to the seven days preceding and the days which follow the winter solstice. And since then the fisherman's song has been:

"Like us, for fish, she sails to sea,
And, plunging, shows us where to find 'em.
Yo, ho, my hearts! let's seek the deep,
Ply every oar, and cheerily wish her,
While the slow bending net we sweep,
God bless the Fish-bank and the fisher."



GREAT BLUE HERON.
(*Ardea herodias*).
½ Life-size.

COPYRIGHT 1903, BY A. W. MUMFORD, CHICAGO

CHAPTER XII.

March 12—March 18.

THE GREAT BLUE HERON.

Order—Herodiones

Suborder—Herodii

Family—Ardeidæ

Subfamily—Ardeinæ

Genus—Ardea

Species—Ardea herodias

Length—About 42.00 to 50.00; wing, 17.90 to 19.85.

Migration—North, March; south, October.

“Grotesque and tall he stands erect
Where the reed-ripple swirls and gleams,
Grave, melancholy, circumspect,
A hermit of the streams.”

The family Ardeidæ is composed of the bitterns and herons, and has in it about seventy-five species, members of which are found in all parts of the world, but most frequently in the torrid and temperate zones. The family is divided into two sub-families, namely: (1) Botaurinæ, composed of the bitterns, and, (2) Ardeinæ, composed of the herons. Of the herons there are nine species in the Middle West, and of these the Great Blue Heron is, perhaps, the most distinguished member.

In his Key to North American Birds, Mr. Elliott Coues says: “It is in this family that powder-down tracts reach their highest development; and although these peculiar feathers occur in some other birds, there appears to be then only a single pair; so that the presence of two or more pairs is probably

diagnostic of the family. In the genus *Ardea* and its immediate allies there are three pairs, the normal number; one on the lower back over the hips, one on the lower belly under the hips, and one on the breast along the track of the formula." The powder-down feathers referred to in the foregoing quotation are feathers which are remarkable for continuing to grow indefinitely, and with this there is a constant breaking off of the ends of the barbs. In the illustration they are readily seen over the hips and in front of the breast. Mr. Coues says their use is not known, but Mr. Baskett says that "it has been ascertained that in herons at least these spots are phosphorescent at night, and that fish are thereby lured within easy reach."

The great blue heron, commonly called the blue crane, is about four feet long from the tip of the bill to the end of the tail and has a wing extent of about six feet. Its bill is from four to six inches long and of a horn color; iris of the eye, yellow; center of crown and throat, white; sides of crown black, this color meeting on the back of the head where the feathers are lengthened and form an occipital crest; neck, pale greenish-brown; feathers of the lower foreneck narrow and much lengthened, sometimes with black streaks; back, wing coverts and tail slaty gray; bend of wing, chestnut rufous; tail, very short and even; black patch and white feathers on the side of the breast; breast and belly streaked with black and white; tibia long, upper half feathered and of rufous color, lower half bare and yellowish; tarsus about eight inches long and black; feet, black; from tip of front toe to tip of hind toe, eight inches; hind toe is on a level with the others; claws moderate, curved and acute with the inner edge of the middle one pectinated. Formerly it was believed that the middle toe was pectinated for the purpose of enabling the bird to seize fish with its feet, but it is now understood that this comb-like arrangement is for the purpose of removing from the bill the sticky down which adheres to it after cleaning its plumage; the claw is passed from the tip of the bill to the base on each side, and any feathers, slime or fish, or adhering dirt is thus removed. The sexes are alike in appearance, except that the male is the largest.

The range of this heron extends from the Columbia Valley and Venezuela north to Hudson's Bay and Sitka. They are practically gregarious and are altricial. Generally they nest in the tops of trees in swamps or other places near the water and in communities known as heronries. Audubon says that once they have taken possession of a breeding place suited to their taste, they will return to it annually, and repair the old nests until circumstances force them to abandon it. The nests are large and irregularly formed of sticks and lined with smaller twigs. Their structure sometimes is so slight that they tumble to pieces before the young are fit to fly. The eggs, generally four to a clutch, are of an oblong form, larger than those of the domestic hen, and of a light-greenish blue, without any spots.

Professor W. O. Hendlee, in a very interesting account of a heronry in Rush County, Indiana, says: "Incubation lasts about six weeks, and it is well into summer before the young are able to leave the nest. It is a busy time in the heronry, you may guess, when the young are hatched. They feed on fish. Their principal feeding time is in the afternoon. They place themselves in the shade of a tree by the water, or a drift, or among the reeds and water plants, and patiently wait for their prey, which they seize or impale with their long sharp bills." They breed but once in a season, the young are hatched without plumes; these develop gradually with maturity. The young remain on the trees until they are as heavy as the old birds and become extremely fat before they are able to fly. After the breeding season is over the communities break up and they wander about singly or in small flocks, and, as Maurice Thompson says:

"Where the water-grass grows ever green
On damp cool flats by gentle stream,
Still as a ghost and sad mien,
With half-closed eye the heron dreams."

Parkhurst says: "The herons are all alike in the sadly reminiscent, melancholy air that characterizes them in all their attitudes. The heron is the impersonation of gloom, silence

and solitude. Loneliness can only be expressed by sentiment life. A deeper sense of desolation is aroused by seeing a water-fowl coursing its solitary flight above the sea, than in the grandest vision of the boundless deep, unrelieved by even the least appearance of vitality." The flight of the heron is slow and solemn, but grand and stately. Quite frequently I have seen them making their way up and down Fall Creek at Buzzard's Roost and across the country to White River, and vice versa. This occurs generally when the days are cloudy. Occasionally their flight is attended with their quite indescribable piercing squawks and cries, and then, according to Indian lore, it is going to rain. In flight the neck is bent backwards against the shoulders, and their long legs are stretched out behind them, stiff and immovable. At Buzzard's Roost a favorite place for them to alight is on the topmost limbs of a large sycamore tree on the bank of Fall Creek in front of the cottage, and the color of their bodies being much like the blue-gray color of the limbs of the tree, makes it somewhat difficult to see them. Occasionally I have tracked them in the sand on the banks of the stream. Long may they keep coming there, is the wish of the owner of the place. They add a distinctive and interesting feature to its landscape.

The principal part of the food of this heron, as already stated, consists largely of fish. He is also fond of crawfish, frogs, snakes and eels. Wilson says: "He is also an excellent mouser, and of great service to our meadows in destroying the short-tailed or meadow mouse, so injurious to the banks. He also feeds eagerly on grasshoppers, various winged insects, particularly dragon flies, which he is very expert at sticking, and also eats the seeds of that species of nymphæ usually called splatter dock, so abundant along our fresh water ponds and rivers." As has already been said, he captures his food with his long and sharp bill. He also uses his bill in defending himself against his enemies. My friend Dr. O. S. Coffin tells me that in his practice he has had two patients, each of whom had lost an eye by an attack of herons which had been disabled by them while they were hunting. These were instances where the hunted in some measure got even with those who hunted them. Perhaps if there were

more such instances, there would be less reckless killing of these useful and beautiful birds.

It is interesting to watch them taking their food. One of the most beautiful bird scenes that I have ever witnessed was that of five large white herons, *ardea egretta*, thus engaged in Fall Creek. The water was clear, the day bright, and the images of the birds were beautifully reflected in the water. They became alarmed at my presence, took flight and flew up the stream, and as they flew their bodies continued to be reflected in the water, as beautifully as if the surface of the water had been a mirror.

The great blue heron can hardly be called a most useful bird, nor has he any music to commend him, but he may be commended for what he does not do; he is an innocent and harmless creature, if left alone in his wild haunts. It is his great, though simple, beauty that makes him valuable. The Japanese more than any other people have appreciated this fact, and have availed themselves of it in their decorative paintings. In an exhibition of Japanese art which it was my privilege to attend I was impressed with the beauty of their bird drawings and paintings, and especially with their beautiful soft blue and grayish tints.



CHAPTER XIII.

March 19—March 25.

THE WOOD DUCK.

Order—Anseres

Family—Anatidæ

Subfamily—Anatinæ

Genus—Aix

Species—Aix sponsa

Length—18.50 to 20.00; wing, 9.00 to 9.50; bill, 1.40.

Migration—North, March; south, November.

“Nothing impaired with clean and ruddy leg
Through every plash he wades, with chattering beak
Fishes the miry shallow as he goes;
In quest of snail or slug, or winding worm;
Or launching from the shore his feathered feet,
Pilots his dames along the flooded dike.”

The family Anatidæ contains about two hundred species, and members of it are found in all parts of the world. It includes five sub-families, namely: 1. Merginæ composed of the Mergansers or fish-eating ducks; 2. Anatinæ, the pond or river ducks; 3. Fuliginæ, the bay or sea ducks; 4. Anserinæ, the geese; and 5. Cygninæ, the swans. The familiar external characteristics of the family are a large flattened bill, covered with soft epidermis rather than horn, and with sides armed with lamella or small teethlike processes; the tongue is fleshy with dentated margins; the wings are moderate; the feet are near the center of equilibrium; the anterior toes joined by a web; and the neck is long. The wood or tree duck, *aix sponsa*, belongs to the sub-family anatinæ, composed of the pond or

river ducks, and it is often designated as the summer duck. The species was named by Linnæus on account of its beauty, sponsa, a bride. It is the most beautiful of our ducks. It is called the wood duck and tree duck from the circumstance of its breeding in the trees, and the summer duck from remaining with us chiefly during the summer.

The bill of the adult male is pinkish, red at the base, black underneath and on the ridge and tip, which is accutely decurved; a line from the bill over the eye, a similar one at the base of the side of the elongated crest, and some of the crest feathers, white; crown of head, remainder of crest, cheeks, green with purple reflections; iris of the eye, reddish; throat, a band from it up to the side of the head, and a wider one on the nape, white; breast, rich reddish chestnut spotted with white; back, greenish brown; white and black crescent in front of wings, which are a glossy green, tipped with white; wings, purplish blue, edged with white; spot at either side of base of tail, reddish chestnut; tail, greenish blue; belly, white; flank feathers being tipped with wider bars of black and white; legs, yellow. Adult female smaller; bill, reddish; head and neck, dull; chestnut of the neck detached and dull; sides not striped; legs and feet, yellowish inside.

The range of the wood duck extends from Cuba and the southern border of the United States, north to Nova Scotia, New Brunswick and Ontario, and westward to British Columbia. It is not common in the eastern Canadian Provinces, but in parts of Manitoba and British Columbia it is abundant. In the Saskatchewan region it has been found as far north as latitude 54 degrees and on the west shore of the Hudson Bay as high as latitude 60 degrees, but it is rare north of latitude 50 degrees. In the United States, it is commonly distributed in the Mississippi Valley, and eastward, as well as along the Pacific Coast from Washington to Southern California, but, in a few isolated localities, it is very rare or absent in the Great Basin, Rocky Mountains and Great Plains region.

They breed throughout the greater part of their range. Often they are paired before migrating, and through April most of them are mated, and are looking for nesting sites. The nest is generally placed in a natural or artificial cavity of a

tree. Almost any tree, or tree branch, containing the essential hollow, and suitably located, is utilized. Broken branches of high sycamores, seldom more than forty or fifty feet from the water, are according to Audubon, favorite places for their nests. Occasionally the nest is placed among the branches of trees and is built of twigs, grasses, leaves and feathers. A pair will nest in the same place for years in succession, and this would seem to indicate that they mate for life. Eight to fourteen creamy white eggs, oval in shape and less in size than those of a hen, constitute a clutch. The female attends to the incubation which lasts about twenty-one days. During this time, she leaves the nest only long enough to obtain food and water, and when she leaves the nest, she carefully covers the eggs with feathers and down. During the nesting period, the male remains close by where the nest is located, seemingly keeping a watch over his mate and her nest.

Like the young of domestic ducks and other precocial birds, young wood ducks are ready to leave the nest and obtain their food as soon as they are hatched. How do they get from the nest to the ground and water? This question has been answered in various ways. Audubon, Wilson, Chapman and other authors agree that they "are brought from the nest to the ground in the bill of the parent." Wilson in describing the process says, "She caught them in her bill by the wing or back of the neck, and landed them safely at the foot of the tree, when she afterwards led them to the water." Mr. Abbott, however, in *A Naturalist's Rambles about Home*, gives a full account of two nests which he watched. Of the first he says, "I had not long to wait before the *modus operandi* in this case was learned. The old duck, by sound or actions, gave the little ducklings to understand that they were to follow their mother, and presently she slowly clambered down the trunk of the tree, which grew at an angle of forty-five degrees from the level surface of the ground, and was followed by the ducklings. * * * There is one fact, too, that has an important bearing on this subject. It is well known to those who have tried to rear young wood-ducks, that the newly hatched birds have long, sharp, really cat-like toe-nails; and by their aid the little ducklings, while yet bits

of shell cling to their backs, can clamber over the limbs of trees and up any almost perpendicular surface, if at all rough. * * * Two years later I found another duck's nest. In this instance the nest was fully fifty feet above the water, in a tangled mass of twigs and grape vine, on a large button-wood that grew from the water's edge and towered nearly one hundred feet above the creek. On the third day I was rewarded for my persistence, for on taking my position in the neighboring tree, I saw that some of the young had disappeared, and I felt sure the others would follow soon, unless, indeed, their fellows had fallen from the nest. This proved not to have been the case, for, in the course of an hour, the old duck made her appearance, and now I fairly held my breath as I watched her with my glass. After a moment's rest she squatted closely down on the nest, and a duckling quickly climbed upon her back and nestled closely between her shoulders. The old bird then walked slowly to the very edge of an overhanging limb and with outspread wings, with a slow flapping motion of them, let herself down, rather than flew, to the water. The moment she touched the surface of the stream she dived, and left the duckling swimming on the water, and to all appearances perfectly at home. This was repeated four times, when the tender brood were all safely afloat, and as quick to scent danger and flee from it as was their mother."

Ducks do not sing; some of them quack. The common note of the drake of the wood duck is "peet, peet;" but when standing sentinel, if he sees danger his note is changed to "oe eek; oe eek!", and the response of the young is a soft mellow "pee, pee, pee-e," which is uttered rapidly, and at repeated intervals. Mr. Butler in his *Birds of Indiana*, says, "As the broods hatch they are led to the more retired waters and taught all that is necessary to know about feeding, diving and flying, together with all the necessary accomplishments. When they are deemed ready to care for themselves, they come out upon the more open stream." The flight of this duck is swift and graceful, and it rivals the grouse and quail in the ease and facility with which it glides through the woods among the branches. Its food consists of insects, the seeds and leaves of aquatic plants, and beechnuts and

acorns. Its fondness for the latter on which it feeds largely in autumn gives it in some localities the name of acorn duck.

In my boyhood these ducks were very plentiful in our streams and marshes; now they are very rare. Almost every spring two or three pairs of them are seen flying up Fall Creek at Buzzard's Roost, but, so far as I know, they do not breed in this locality. Dr. A. K. Fisher in 1901 in the Year Book of the U. S. Department of Agriculture under the title Two Vanishing Birds, published a very full and interesting account of the woodcock and the wood duck. He very clearly demonstrates that unless vigorous measures are taken these two birds are doomed to extinction. Spring shooting is that which does most to bring this about. He says "it goes without saying that birds are most easily and more completely destroyed on the breeding grounds than on areas which they merely pass over during migration; for when breeding season arrives and the nesting site is chosen birds become less shy and more inclined to remain in the neighborhood, so that the gunners (the term 'sportsmen' can not be used in this connection), while in search for late migrants, have little difficulty in killing all the wood ducks that are to be found." Is it not a shame that there are those who have so little consideration for the useful and beautiful creatures that God has given us that they destroy them even to utter extinction?

THE
MUSEUM
OF
NATURAL
HISTORY
OF
THE
CITY
OF
CHICAGO



WOODCOCK, BY A. W. HARRIS, CHICAGO.

THE MUSEUM OF NATURAL HISTORY OF THE CITY OF CHICAGO

CHICAGO, ILL., 1900. THE MUSEUM OF NATURAL HISTORY OF THE CITY OF CHICAGO

CHAPTER XIV.

March 26—April 1.

THE AMERICAN WOODCOCK.

Order—Limicolæ

Family—Scolopacidæ

Genus—Philohela

Species—Philohela minor

Length—10.50 to 11.75; wing, 4.80 to 5.70; bill, 2.50 to 3.00.

Migration—North, March; south October.

The family Scolopacidæ, of which the American woodcock is a member, is composed of the snipes and sandpipers. The family has in it about one hundred species and these are distributed throughout the world. About forty-five of them are found in North America. As a rule, they have long bills with which they probe the soft earth or mud for their food. Most of them are shore birds.

Our woodcock is called the American woodcock, philohela minor, to distinguish it from the European woodcock, scolopax rusticola, which bears a general appearance to the American species. Some of the early writers claimed that they were identical. But Wilson says, "A few traits will clearly point out the difference. The lower parts of the European woodcock are thickly barred with dusky waved lines on a yellowish white ground. The present species has those parts

of a bright ferruginous. The male of the American species weighs from five to six ounces, the female eight; the European twelve. The European woodcock makes its first appearance in Britain in October and November, that country being in fact its only winter quarters; for early in March they move off to the northern parts of the continent to breed. The American species, on the contrary, winters in countries south of the United States, arrives here early in March, extends its migrations as far, at least, as the river St. Lawrence, breeds in all the intermediate places, and retires again to the south on the approach of winter. The one migrates from the torrid to the temperate regions; the other from the temperate to the artic."

In appearance the male and female woodcock are alike, except that, as we have seen, the female is the largest. The body is stout and the head, bill and eyes are very large. The bill is from two and a half to three inches long. This it uses as a probe in obtaining its food from borings in the mud. Two of these are indicated in the illustration—the one just in front and the other in the rear of the right foot. It is said that the tip of the bill is supplied with very delicate nerves which enables the bird to determine when it has touched a worm, and recently Mr. Gordon Trumball has discovered that the bird can move the tip of its upper mandible independently of the lower one, and thus the organ is made to act as a finger to assist it in drawing food from the ground. The eyes are fixed far back from the bill, and high in the head. Wilson says that this construction was necessary to give a greater range of vision and to secure the eye from injury while the owner is searching in the mire for food. Being a bird of nocturnal habits, like the owls and night hawks, its very large eyes with exceedingly large pupils are adapted for seeing in the dark, and accordingly Mr. Chapman calls it the owl among snipes. On the hind part of the head are three transverse black bands, alternating with three others of pale yellowish rufous; a brownish black line from the eyes to the bill and one below the eyes. The upper parts are variegated with pale ashy, yellowish rufous of various shades, and black; the lower parts are pale rufous, brightest on the sides. The wings are short and rounded; almost tailless; tibiae short and feathered to the

knee; toes, long and cleft to the base with the hindermost ones projecting high up.

The woodcock is an inhabitant of the middle and eastern part of the United States. It is rare or accidental west of the ninety-seventh degree of longitude and north of eastern Manitoba, the Great Lakes, Ottawa and St. Lawrence rivers. Its true home is in the Mississippi Valley and the northern and middle tiers of the States, where it is found on the springy hillsides and marshy ground along streams where it nests and gets its food. In the winter it is found chiefly in the South Atlantic and Gulf States, particularly in the extreme alluvial tracts of Georgia and Louisiana.

Dr. A. K. Fisher in his bulletin, *Two Vanishing Game Birds*, says, "The general appearance of the woodcock clearly suggests its nocturnal or crepuscular habits. During the brightest parts of the day it seldom takes wing unless disturbed, though it may perhaps feed in secluded places during dark, cloudy weather, or when protected by unusually thick cover. When dusk comes, however, it is all activity, and leaves its hiding place to visit its feeding grounds in marshes, along streams in low meadows, or in fields of growing corn. In favorable localities, the woodcock can be heard at dusk flying back and forth, and occasionally the glimmer of their wings can be seen as they alight in the open. In former days, before they had become scarce, it was a common sight from early twilight until dark to see or hear them flying about the open pastures or springy hillsides of northern New York, nor was it a rare event to flush them from the kitchen garden or barnyard, or even from shrubbery close to the house, where they had come in search of food. Their flight is variable, not only in character, but also in force and swiftness; at times, when the animal is pursued, its movements are seemingly labored and irregular as it zigzags up toward the tree tops; at other times it has the swift, regular motion characteristic of other members of the group." He shows conclusively that unless strong protective measures are adopted this most popular and valuable of our game birds will soon become extinct.

They breed throughout their range, and this makes the

time of their breeding vary according to the location in which they are found. In Louisiana and Florida eggs have been found early in February. In the Middle West they do not commence until about the middle of March. The nest usually is a loose structure of grass placed among the leaves in a more or less hilly place near the feeding grounds where it will be out of danger of rising water. At Buzzard's Roost, I accidentally found one in the edge of the timber, on the point of a hill next to Fall Creek. The eggs are buffy in color, mottled or spotted with darker shades, and generally are four in number. From the instant the young leave the shell they are able to feed themselves, but it is said that the mother bird carries them to their feeding grounds.

The courtship on the part of the male woodcock is a most interesting performance. Mr. Eugene P. Bicknell gives a very interesting account in the *Auk*, July, 1885, of the flight of one which he witnessed on such an occasion. He says, "The bird would start up from amid the shrubbery, with a tremulous, whirring sound of the wings, rising with spiral course into the air. The spiral varied considerably in pitch, sometimes expanding to sweep far out over the neighboring fields, where a single evolution would carry the bird upward almost to the extremity of its flight, which was sometimes over the point of departure. The rapid trilling sound with which it started off, as woodcocks do, continued without interruption during the ascent but gradually became more rapid, and as the bird neared its greatest height, passed into pulsations of quivering sound. Each pulsation was shorter and faster than the last, and took the tremolo to a higher pitch, sounding like a throbbing whirl of fine machinery or suggesting in movement the accelerating, rhythmic sound of a railway car gradually gaining full speed after a stop. At last, when it seemed as if greater rapidity was not possible, the vertex of the flight would be reached, and descending with increasing swiftness, the bird would break forth into an irregular chippering, almost a warble, the notes sounding louder and more liquid as it neared the earth. Suddenly there would be silence, and a small, dark object would dart past through the dusk, down amid the shrubbery. Then at silent intervals, a single

strange and rather startling note, a loud, sharp, and somewhat nasal 'speat' or 'spueat,' which sounded as delivered with a spiteful directness at some offensive object." At other times the flight of the woodcock is slow. When flushed in the woods, he rises to the height of the bushes or underwood, and almost instantly drops behind them again at a short distance, and as soon as he touches the ground runs off for several yards.



CHAPTER XV.

APRIL 2 to April 8.

THE KILLDEER.

Order—Limicolæ

Family—Charadriidæ

Genus—Aegialitis.

Sub-genus—Oxyechus

Species—Aegialitis vocifera

Length—10.00 to 11.25; wing, 6.20 to 6.75; tail, 3.60 to 4.10.

Migration—North, March; south, November.

"O little plover, still circling over
Your nest in clover, your house of love,
Sure none dare harm it, and none alarm it
While you are keeping your watch above."

"Now let me pass, sir, a harmless lass, sir,
With no designs on your eggs of blue,
I wish your family both health and wealth, sir,
And to be as faithful and kind as you."

The family Charadriidæ is composed of the plovers, and has in it about one hundred species. Only eight of these are found in North America. Birds of this family have large heads with moderately long and slender bills which are shaped somewhat like a pigeon's; short, thick necks and plump bodies; wings long, pointed and extending to the tip of the tail, and in some instances with spurs; tails short, broad, and generally even; tarsi, long and slender; the outer and middle toes are more or less united at the base, and the hind toe small or wanting. Indeed it may be said that this is the three toed family of birds.

The killdeer, a member of this family, gets its name from its notes of "kill-dee, kill-dee, dee, dee, dee." In appearance

the male and female are alike. The color of its bill is black; eyelids, red; iris, dark brown; the head above and the upper parts of the body are light brown with a greenish tinge; around the neck is a black ring or collar from which comes its name of ring neck plover; a spot at the base of the upper mandible, a line over the eyes, ring around the neck, the under part of the throat and the underparts of the body are white, with white spots on the shorter primaries, and the secondaries and the four middle feathers of the tail are tipped with the same color.

The range of the killdeer extends from Columbia and the West Indies north to Manitoba and Alaska, and it breeds throughout its range. In the southern states it commences breeding about the beginning of April and a month later in the Middle West. Its nest is a mere depression in the ground and is difficult to find because the eggs are of a mottled creamy color, and much resemble the ground or gravel about them. Four of these constitute a set, and a peculiar fact is that the small ends are laid together so as to form the appearance of a Greek cross. The young are able to run early after they are hatched, and the old birds are very devoted to them—so much so that the female will resort to all kinds of ruses and manœuvres in order to divert one who approaches them. She will throw herself upon the ground two or three yards in advance, raise and flutter with one wing quite helplessly and cry piteously, in order to lure the intruder away from her young and give them a chance to escape and hide, and the male will fly overhead in a circle about the intruder and scold him with his “kill-dee, kill-dee, dee, dee, dee” in the most vehement way.

The killdeers frequent uplands and lowlands, fields and shores. They prefer newly plowed fields, the banks of clear streams, and the elevated, worn-out grounds, where they feed on worms, grasshoppers, small crustaceans and snails. I have very pleasant recollections of them following the plow when I was a plow-boy. One of their peculiar characteristics is their restlessness. They are ever on the alert and always in a place where they can see what is going on about them. One will run about in a small space of ground here and there, and often when there is nothing to disturb him, will take wing to some

other posture or stream and dart down to investigate another bit of scenery. I do not remember to have ever seen a flock of them in repose. They have the habit of bobbing up and down in a kind of involuntary courtesy especially if any one is watching them and they are a trifle suspicious of the intruder. They then are apt to start off in a rapid run, and as they run, utter their other and lower call which is represented by "te-e-e-e-t." Their large eyes tell the story that they feed at night as well as in the day time, and often at night, when the first faint stars peep out from the folds of night's gray curtains, their call, "kildee, kildee" is to be heard. The negroes down south believe that the killdeer is a witch bird, and some of them never shoot them for fear the spirit of the dead bird might come back and haunt them.

Except when breeding kildeers are gregarious. As Wilson says, "They usually stand erect on their legs, and run or walk with the body in a stiff horizontal position; they run with great swiftness, and are also strong and vigorous in the wings. When in flight they sometimes rise to a great height in the air. Their flesh is not very good for food, but they are hunted and killed for that purpose." That they are useful birds can not be successfully controverted. I agree with Mr. William L. Bailey that "the killdeer is in every respect a beautiful bird. Whether seen at a distance, sailing or diving with such graceful ease through the buoyant air, or whether upon a nearer view, we look upon the lively tints of his exquisite plumage, we can not but feel that he is worthy of our notice, and to become the companion of our rambles."

The migration of birds is, perhaps, the most interesting subject connected with their study. What becomes of our summer birds? Where do they spend the winter? By what routes do they travel and how do they travel to their destinations? How do they find their way? These are questions which have been puzzling the brain of man for centuries. Some of our shore birds appear to make traveling their chief occupation. Notably among these is the American golden plover, a cousin to the killdeer plover. In a valuable paper Mr. Wells W. Cooke of the United States Department of Agriculture, says that the golden plovers are found in southern Brazil and the prairie re-

gion of Argentina from September to March. In March they appear in Guatemala and Texas; April finds their long lines trailing across the prairies of the Mississippi Valley; the frost of May sees them creeping along our northern boundaries and through Canada and by the first week in June we find them in their place of breeding, in the bleak, wind-swept "barren grounds" above the Artic Circle, far beyond the tree line. Some even venture one thousand miles farther north. While the lakes are still ice bound, they hurriedly fashion shabby little nests in the moss only a few inches above the frozen ground. By August they have hatched their young and with them have hastened to the coast of Labrador to enjoy a feast of the crowberry, a juicy, black, fruit which is produced in great quantities on a vine which grows over the rocks and treeless slopes of that inhospitable coast. After a few weeks of such feasting the plovers become excessively fat and are ready for their return flight. They have raised their young under the midnight sun, and now they seek a southern hemisphere. After gaining the coast of Nova Scotia they strike straight out to sea and take a direct course for the easternmost islands of the West Indies. Eighteen hundred miles of ocean waste lie between the last land of Nova Scotia and the first of the Antilles, and yet six hundred more to the eastern mainland of South America, their objective point. The only land along the route is the Bermuda Islands, eight hundred miles from Nova Scotia. In fair weather the birds fly past the Bermudas without stopping; indeed they are often seen by vessels five hundred miles or more east of these islands. Though feathered balls of fat when they leave Labrador, and still plump when they pass the Bermudas, the plovers alight lean and hungry in the Antilles. Only the first, though the hardest, half of the journey is over. After a short stop of three or four weeks in the Antilles and on the northern coasts of South America, the flocks disappear, and later their arrival is noted at the place from which they made their start in March. What a journey! Eight thousand miles of latitude separates the extremities of their elliptical course, and three thousand of longitude constitutes the shorter diameter, and all for the sake of spending ten weeks on an Artic coast.





ROBIN.
(*Merula migratoria*).
Life-size

COPYRIGHT 1900, BY A. W. HUMFORD, CHICAGO

CHAPTER XVI.

April 9—April 15.

THE AMERICAN ROBIN.

Order—Passeres.

Suborder—Oscines.

Family—Turdidæ

Subfamily—Turdinæ.

Genus—Merula.

Species—Merula migratoria.

Length—9.00 to 10.00; wing, 4.90 to 5.40; tail, 4.10 to 4.50.

Migration—North, March; south, October.

"I love to sit and listen
In the dawning of the day,
To the robin sweetly singing,
In the tree across the way.

The American robin is a member of the subfamily turdinæ, composed of the thrushes. Like the English sparrow, it is so common, both in the city and the country, that by several authors it is made a standard of measurement. It would seem therefore almost unnecessary to describe the bird, yet in the schools I have found grown up children, who could not tell me the color of its bill. Indeed the artist who made the illustration for this chapter has failed to depict it correctly, since he has made it brown with a slight tinge of yellow instead of making it yellow with a slight tinge of brown. When talking to a school about birds, one of the boys asked me how the robin got its name, and all that I could tell him was that it was so named because of its supposed resemblance to the robin redbreast of Europe, with which our forefathers were

familiar, and while in a measure this was correct it was not sufficient. This illustrates how little we know about the common things about us. Everybody ought to know that the bill of the robin is yellow, and I ought to have been able to tell the boy the name robin is from rubeo, meaning red, the distinctive color of the European robin, and in this connection have told him some of the legends about the naming of that bird. For instance the legend, that after Jesus had been nailed to the cross, a robin timidly alighted on one of the extended arms of that cruel instrument of death. With its wings, it tried to wipe away the blinding sweat and blood from the face of Jesus, while with its beak, it tried to pluck away one of the thorns which were piercing his forehead. While doing so a single drop of blood fell on the breast of the pitying little gray bird, and thus gave to the world the robin redbreast. And to it Jesus said: "Blessed be thou, little bird, which sharest my sorrows. My joy accompany thee everywhere. Thine eggs shall be blue as the sky above; thou shalt be the 'Bird of God, bearer of good tidings.'"

As a standard of measurement for other birds the robin is ten inches long. The head and throat of the adult male are black with a slight ring of white around the eyes and streaks of like color under the throat; the upper parts of the body, including the wings and tail are slightly brown; the tail when widely spread shows a tip of white on each feather; the under parts of the body are chestnut, except the under tail coverts and the abdomen which are white; the legs and feet are dark brown. The adult female is smaller than the male, and her plumage is much lighter or of a grayish color. The young are conspicuously streaked and spotted with black and gray, and in this respect show their relationship to the thrushes.

The robin, as its common name indicates, is an American bird, and as its scientific name indicates, is a migrant. Its range is east of the Rocky Mountains, and extends from the Gulf of Mexico to Labrador. Audubon recounts that the first land bird he saw when he stepped upon the rugged shores of Labrador, was the robin, and its joyful notes were the first to salute his ears. This, he says, was at a time when large patches of snow still dappled the surface of that bleak country, and al-

though vegetation was partially renewed, the chilliness of the air was peculiarly penetrating. Usually the spring migration of the robin begins near the first of February and the birds become common in that month within a few days after the first migrants are noticed.

In the last chapter I said that the migration of the birds is probably the most interesting subject connected with the study of the birds. One of the facts connected with their migration is that with many species, the males precede the females. I have never seen any explanation for this and I know of none. In my home city during the last week in January I saw a flock of male robins that must have had a thousand birds in it. They tarried about a fortnight, and during that time fed on hackberries which they came to in the morning and feasted upon them during the day. When evening came they flew to a roost northeast of the city. After their feasting and rest, the major part of the flock passed on to the north. Those that remained distributed themselves throughout the city and waiting, sang and watched for the coming of the females.

"So he sings but ever watches
That his lady he may see,
And his voice, on her arrival,
Shows a tone of ecstasy;
'Now, dear love, at last you're near me;
Ah, my heart did greatly fear me!
Cheer up, cheer up,
Julia Tealeaf
What a relief!"

From Audubon's account of finding the robin so early in Labrador, we would conclude that they travel northward faster than the opening of spring. But in his paper on migration, Mr. Cooke says, "The robin as a species migrates north more slowly, than the coming of the spring season; it occupies seventy-eight days for its trip of 3,000 miles from Iowa to Alaska, while spring covers the distance in sixty-eight days. But it does not follow that any individual bird moves northward at this leisurely pace. The first that reach a given locality in the spring are likely to remain there to rest and the advance of the migration line must wait the arrival of other birds from

still farther north. Therefore each robin undoubtedly migrates at a faster rate than the apparent movement of his species as a whole, and does not fall behind the advancing season. This is true of most if not all, of the other seemingly slow migrants. Late and rapid journeys of this kind offer certain advantages; fewer storms are encountered, the mortality rate is lowered, food is more plentiful along the way, and the birds reach the nesting site full of energy, bubbling over with song, and in good condition to assume the cares and labors of home building and brood raising." The robin winters sparingly in sheltered localities to about 40 degrees north, but the great body of the birds spend the winter months in the territory between 36 degrees north and the Gulf of Mexico. In their winter homes in the southland the bird is regarded as a tender morsel to be made an integral part of a stew or pot pie. In Tennessee are large tracts of cedars, the berries of which serve to attract myriads of robins in the winter. It is said that one small hamlet in this district sends to market annually about 120,000 birds.

Robins breed throughout their extensive range north of a line running through Kansas and Virginia, excepting the extreme northern Arctic regions. In the Middle West they usually begin nest building during the first half of April. The nest is built of twigs, grass, strings, paper fibres with much mud lined with fine grass, and is a bulky affair. One that was built in a maple in front of Elmhurst had dangling from it a long white ribbon, and a friend told me about another that had a lace handkerchief for its foundation. It requires about a week to build the nest and they are most generally found either on the branch or in a crotch of a tree, but frequently in other odd places. When a boy I found many of them on the flat rails of our worm fences. At Somerleaze we have had one in the eaves trough to the carriage house and another on the cross railing of our veranda. A clutch of eggs ranges from three to six and they are of the color known as robin's egg blue. One egg, usually, is laid each day. About thirteen days are required for incubation, and the young robins remain in the nest twelve or thirteen days. Two broods are reared in each year, and occasionally three. The parent birds are very devoted to their

young and continue to feed them for sometime after they have left their nest. In our city I remember to have seen four young ones, seemingly larger than their mother, following her about and most piteously begging her for food, and how hard she did work for them!

It has been my privilege to hear many distinguished singers, and the songs of these have touched my heart and I hope have made a better man of me, but none of them has left with me a sweeter and more delightful memory than the song of the robin. I was returning home from my office one evening through a spring shower. The clouds were breaking away in the west and here and there the sun was shining through their rifts. To my right on the topmost bough of a large maple tree, a robin with his head uplifted to heaven was singing in the rain. Enchanted I stopped to

"Listen to that soaring strain!
It is the robin in the rain.
Sitting there aloft, aloof,
Pouring from his throbbing throat,
Note upon ecstatic note;
Rapture in the swift refrain—
Robin in the rain."

No other bird has been written about more and is more warmly welcomed and loved than the robin. This is due to the fact that he lives near to our houses, is our most familiar bird, and is the bird of varied and constant song. It is his morning song that welcomes the rising sun and his evening song that puts it to rest beyond the western horizon. I am ever reminded by him that Longfellow says:

"Think, every morning when the sun peeps through
The dim, leaf-latticed windows of the grove,
How jubilant the happy birds renew
Their old melodious madrigals of love!
And when you think of this, remember, too,
'Tis always morning, somewhere, and above
The wakening continents, from shore to shore,
Somewhere the birds are singing evermore."

At Buzzard's Roost at the first faint coming of the light, the anthem begins with the crowing of the roosters in the far

east. This comes nearer and presently those in the barn yard join in the chorus, and after they have had their crow, it passes on to the west, becoming fainter and finally dies away. Then the robins begin in a subdued tone,

"As if they were talking in their sleep,
At three o'clock in the morning."

Many interesting stories have been written about the robin, growing out of the strong hold that it has upon the affections of the people and the affection that the birds have for each other, and on account of their intelligence. It is told of Corliss, the famous engine builder, that at one time he was working on a contract, under heavy penalty to supply a steam pumping apparatus and power house within a specified time. In blasting and clearing the necessary place for the foundations of the building, a robin's nest was discovered in a small tree within the space. When Mr. Corliss learned of this he had the work transferred to the other side of the square so as not to disturb the bird. But it proved that when the workmen got clear around and back to the robin's nest, the young birds were still not quite ready to fly. After looking at the little tree with its nest and little birds high in its branches and thinking about what to do with them, he directed the men to support the tree carefully, saw through it and then carry it in an upright position to a safe distance and stick it into the ground with proper support. And thus the little robins were saved and flew away together after a few more days.

My fellow townsman, Mr. H. H. Lee, tells a good story about the robins that had nested in his back yard for thirty years. He and his wife esteemed them as favorite tenants, for they richly paid for their tenancy. The birds had built their nest quite close to the house, and it attracted the attention of a boy with a devil sling. The mother bird was on the nest and the slinger struck her, and broke her wing. She fell to the ground and was unable to fly back again to her nest. The male bird was greatly distressed. He hopped about her, making piteous cries and evidently was unable to understand the situation. Mrs. Lee picked up the wounded bird, mended its wing with surgeon's plaster and then placed it in a cage

where the male bird could visit his mate. There were eggs in the nest and the mother was unable to attend to her maternal duties. There was a new and pressing responsibility on the father of this prospective family. He was equal to the emergency. Evidently he had done some thinking. He saw that the mother was getting on as well as could be expected. What did he do? That bright breasted robin took her place on the nest and hatched out the brood. They could see him from day to day, feeding the young robins and from time to time he would come to the cage and converse with the mother bird evidently asking and receiving advice as to the manner of bringing up the little ones. Many times did they see him come and bring to the wounded bird a big fat worm and pass it to her through the bars of the cage. It was a pretty picture of conjugal affection. When the wing was thoroughly healed Mrs. Lee released Madam Robin and she joined her faithful spouse and the little ones.

I do not like the picture of the robin in the Year Book of the United States Department of Agriculture, and the many that have been copied after it, which depicts him as tugging away at an angle worm. They tend to create the impression that the sole occupation of these birds is to destroy angle worms. For his meat diet, the robin not only eats angle worms but bugs, flies, spiders, grasshoppers, crickets, caterpillars, the larvae of the March fly, cut worms and army worms. At once it will be noticed that most if not all of these are destructive pests. They are accused of taking fruit but it has been demonstrated that less than five per cent. of their food consists of cultivated fruit. With this good record in his favor, who is it that would banish him from the face of the earth? Without his sweet notes, our mornings would be "like a landscape without the rose, or a summer evening sky without its tints."

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100



BLUEBIRD.
766. *Sialia sialis*. (Linn).
Life size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XVII.

April 16—April 22.

THE BLUEBIRD.

Order—Passeres.

Family—Turdidæ

Genus—Sialia.

Length—5.70 to 7.00; wing, 3.90 to 4.15; tail, 2.60 to 2.90.

Migration—North, February; south, November.

Suborder—Oscines.

Subfamily—Turdinæ.

Species—Sialia sialis.

"Winged lute that we call a bluebird.

You blend in a silver strain

The sound of the laughing waters,

The patter of spring's sweet rain,

The voice of the wind, the sunshine,

And fragrance of blossoming things,

Ah, you are a poem of April,

That God endowed with wings."

The bluebird is a member of the family Turdidæ and a full cousin of the robin—the two standing highest in the classification of our birds and are the most familiar of our native birds in the Middle West. "It is worthy of remark," says Mr. John Burroughs, "that among British birds there is no blue bird. The cerulian tint seems rarer among the feathered tribes there than here. On this continent there are at least three species of the common bluebird, while in all our woods there is the bluejay and the indigo bird—the latter so intensely blue as to justify its name. There is also the blue grosbeak, not much behind the indigo-bird in intensity of color and among our warblers the blue tint is very common." To these might have been added the belted kingfisher, the

blue-gray gnatcatcher and the great and little blue herons, and perhaps others.

The adult male bluebird above, including the wings and tail is of a bright blue color; throat, neck, breast and sides, partially under the wings, chestnut; belly and vent, white; bill and legs are black. The upper parts of the female are grayish; the other parts are like those of the male, but duller. The bluebird is said to bear a strong resemblance to the English robin redbreast, being similar in form, having a red breast and short tail-feathers, and with only this difference, that the one is blue above where the other is olive colored. Because of this resemblance the Pilgrim Fathers called it the Blue Robin. The legend of its creation is that,

"When God had made a host of them,
One little flower still lacked a stem
To hold the blossom blue;
So into it he breathed a song
And suddenly with petals strong
As wings, away it flew."

The bluebird is a bird of North America whose range extends north from the Gulf of Mexico through the eastern part of the United States to Nova Scotia, Ontario and Manitoba and west to the Rocky Mountains. There are two sub-species of it namely, the western bluebird, *sialis mexicanus occidentalis*, found on the Pacific coast, and the mountain bluebird, *sialis artica*, found in the western United States. In the southern part of its range the bluebird, *sialis sialis*, is a resident; in the northern a migrant. It comes north very early and returns south very late. It is called the harbinger of spring. I have seen them in February, before the snow had disappeared.

"In the spring,
Nay in the bluster of March, or haply before,
The bluebird comes, and a-wing
Or alight, seems evermore
For song that is swift and soft.
His footprints oft
Make fretwork along the snow,
When the weather is bleak ablow,
When his hardihood by cold is pinched full sore."

The males precede the females in their migration north. Almost immediately after the arrival of the females, house hunting is commenced. This means a search for a cavity or hole of some kind. It may be a knot hole or a deserted woodpecker's nest, and generally these are sought for in an orchard, the outer skirts of the forest or the stake of a worm fence along a highway. At Somerleaze for many years a pair of them have nested in a woodpecker's hole in a fence stake, and here I have had a good opportunity to study them. It was here that I first became convinced that the English sparrows fight the bluebirds and destroy their eggs and nests. One evening the bluebirds seemed much distressed and I hunted for the cause of it and caught a cock sparrow in the very act of destroying the nest and at the foot of the fence stake were the perforated eggs that had been tossed out of it. If not prevented by the English sparrows, the bluebirds will take possession of boxes put up for them about our homes. When I was about five years old my father moved from the city to the farm, and one of the first things he did was to put up a box on a pole in front of our cabin home. A pair of bluebirds took possession of it, and year after year, they nested there. They were the first wild birds that I became acquainted with, and with Maurice Thompson, I can say:

"From childhood I have nursed a faith
In bluebirds' songs and winds of spring;
They tell me after frost and death
There comes a time of blossoming;
And after snow and cutting sleet,
The cold, stern mood of nature yields
To tender warmth, when bare pink feet
Of children press her green fields."

The nest of the bluebird is made of grass and rootlets. As a rule, three to six blue eggs are laid in it. Occasionally white eggs are laid, and when this is done the entire clutch is of that color. Incubation is attended to by the female, and while she is attending to it, the male is ever present and attentive to her, and as Lowell says,

"Shifting his load of song
From post to post along the cheerless fence."

The young leave the nest in fifteen or sixteen days. Two broods are reared during the season, and sometimes three. The male takes an active part in feeding the young, and it is said that as soon as the young of the first brood are ready to fly they are taken care of by him, while the female gives attention to the incubation of another family

Alexander Wilson, the Father of American Ornithology loved the bluebird and "regretted that no pastoral muse had yet arisen in the Western World to do justice to his name, and to endear him to us still more by the tenderness of verse, as has been done to his representative in Britian, the robin redbreast." This inspired him to write the first bluebird poem, and though many have been written since, none that I have ever seen excels it. Of its worth and departure he wrote:

"He flits through the orchard, he visits each tree,
The red flowering peach, and the apple's sweet blossoms;
He snaps up destroyers wherever they be,
And siezes the catiffs that lurk in their bosoms;
He drags the vile grub from the corn it devours,
The worms from the webs where they riot and welter:
His songs and his services freely are ours,
And all that he asks is—in summer a shelter."

"The plowman is pleased when he gleans in his train,
Now searching the furrows, now mounting to cheer him;
The gardener delights in his sweet simple strain,
And leans on his spade to survey and to hear him;
The slow lingering schoolboys forget they'll be chld,
While gazing as he warbles before them
In mantel of sky blue and bosom so red,
That each little loiterer seems to adore him."

"When all the gay scenes of the summer are o'er,
And autumn slow enters so silent and sallow,
And millions of warblers that charmed us before,
Have fled in the train of the sun-seeking swallow,—
The bluebird forsaken, yet true to his home,
Still lingers and looks for a milder to-morrow;
Till forced by the horrors of winter to roam,
He sings his adieu in a lone note of sorrow."

And thus in verse the true story of the bluebird is told. So far as is known, it has not been accused of stealing fruit or of

preying upon the crops. It has been demonstrated that seventy-six per cent. of its food consists of insects and their allies, and most of these are more or less harmful. So far as its vegetable food is concerned, the bluebird is positively harmless. As a songster, he does not equal his cousin, the robin. "His notes are few and not greatly varied, though sweetly and plaintively modulated and never loud. He does not bluster. In the springtime his is an oft repeated strain, "tru-ally, tru-al-ly, tru-al-ly."

"Listen awhile and you'll hear what he's saying,
Up in the apple tree swing and swaying,
Dear little blossoms down under the snow,
You must be weary of winter, I know;
Hark while I sing you a message of cheer,
Summer is coming and springtime is here!"

In the autumn they gather in flocks and seem reluctantly to be making ready for their southern journey. Even after the leaves have fallen and into October and November he "still lingers and looks for a milder to-morrow till, forced by the horrors of winter to roam, he sings his adieu in a love note of sorrow," which as Mr. Chapman says, seems to be "far-away, far-away." Then with Edmund Clarence Stedman, we inquire,

"Whither away, bluebird,
Whither away?
The blast is chill, yet in the upper sky
Thou still canst find the color of thy wing,
The hue of May.
Warbler, why speed thy southern flight? ah, why,
Thou, too, whose song first told us of the spring?
Whither away?"



CHAPTER XVIII.

April 23—April 29.

THE SONG SPARROW.

Order—Passeres.

Suborder—Oscines.

Family—Fringillidæ

Genus—Melospiza.

Species—*Melospiza fasciata*.

Length—6.00 to 6.75; wing, 2.45 to 2.80; tail, 2.58 to 3.02.

Migration—North, March; south, November.

"By the road in early spring,
Always hopefully you sing;
It may rain or it may snow,
Sun may shine or wind may blow,
Still your dainty strain we hear—

 'Cheer—cheer—

 Never, never fear,

 May will soon be here.'

Darling little prophet that you are!"

In his *Birds of North America*, Mr. Robert Ridgway describes one hundred and forty-four species and sub-species of sparrows. These are small birds of the ground or not far from it that find elevated perches for rest and song. As a rule, they are brown and gray with striped upperparts and lighter colors beneath. The males and females are alike in appearance. Their neutral colors are a means of protection to them in the exposed situation which they inhabit. Their flight is labored. They have stout, conical bills admirably adapted to crushing weed seeds, and because of this they are among our most useful birds.

The mandibles of the song sparrow are of a horn color; crown of head, rufous, divided in the middle by a dark gray streak; iris, brown; line over the eye, light gray stripe back of the eye and one on each side of the maxillary stripe, rufous brown; other upper parts, rusty grayish, streaked with brown and black; wings without bars; tail feathers, rufous brown, above with the middle feathers blackish along their shafts; breast with broad wedge-shaped streaks of black and brown, which often unite and form a large dark spot in the center; underneath parts gray, shading to white, heavily streaked with darkest brown; tarsi pale brown, toes darker.

The range of the song sparrow extends north from the Gulf States through the eastern and middle states to Manitoba and Nova Scotia and west to the base of the Rocky Mountains. Some of the birds remain in the north all of the winter, but the greater portion of them migrate. They winter from southern Illinois and Indiana to Massachusetts southward to the Gulf States and breed from Virginia northward to the fur countries. They mate about the middle of March and build their nests in April. The nest is built on the ground or near to it in a bush, and is constructed of coarse grass, dead leaves and strips of bark and is lined with finer grass and hair. In it are laid four or five greenish or bluish-white eggs, varying greatly in their markings, which range from brown to reddish, and lavender to purple. Two and sometimes three broods are reared in a year. The female attends to the incubation. She is very careful about concealing her nest, and does not fly directly to and from it but approaches and leaves it by running close to the ground for some distance. During incubation the male is very attentive to his spouse. He seems to understand that hers is a life of much drudgery and to be anxious to do all that he can to make it as light and sweet as possible.

"He sits on a twig and singeth clear
A song that overfloweth with cheer;
 'Love! Love! Love!
Let us be happy, my love.
 Sing of cheer:'"



The beautiful rose-bowered home of a song sparrow

Kellogg

They have no quarrels or disagreements, nor do they care to be divorced. They, too, are a world to themselves and in that world peace, joy and love dwell. He may be known by his nervous flight, in which his long tail is constantly jerked and by his shyness, which prompts him on the least alarm to retreat into cover.

As I have elsewhere said, Big Branch meandered its way through my father's farm. Its banks were covered with low-growing willows, which were the homes of the cecropia moth, the great golden striped spider and the song sparrow. I was not then acquainted with the cecropia moth, but prompted by curiosity and a desire to learn concerning it, often gathered the cocoons and examined them—and now after more than three score years have passed, I do the same thing, for the life history of this moth is most interesting and well worthy of investigation. Often did I watch the spiders weaving their wonderful webs in which to catch their quarry; and this is a matter of wonder to me yet. Many an evening have I seen the smaller kinds weaving their webs in the honeysuckle about the veranda at Somerleaze. What is more wonderful than the skill of this tiny workman? But that which added the most joy and peace to the country lad's life was the joyous music of the song sparrows in the willows. Many times have I stopped at the end of the furrows to listen to

"That song of perfect trust, of perfect cheer,
Courageous, constant, free of doubt or fear."

Excepting the cardinal, the song sparrow is our earliest, latest and most persistent singer. The song is varied and there is a difference in the quality and volume of the voices of different individuals. In *Wood Notes Wild*, Mr. Cheney says, "I have heard more than twenty songs of this sparrow, and have heard him in many other forms." One of the songs of one on our lawn at Somerleaze seems to be "ze-ze-ze-ze-, sweet, sweet." Others are quite good imitators of the imported canary and are delightfully sweet to the ear. I shall never forget a tramp made out into the country with a young friend of mine the last week in February. As we were wending our way homeward just before sunset, and it was the most

gorgeous sunset that I have ever seen, we were regaled with the song of one of these birds from the brush pile by the roadside, and during that year I continued to hear their songs until in November, and since then I have heard them as late as in December. They are among the very first birds to commence singing in the morning, and they sing even later than the vesper sparrows in the evening. Now that I am growing old I am often reminded of and feel in sympathy with Celia Thaxter, that lover of birds, when she wrote:

"In this sweet, tranquil afternoon of spring,
While the low sun declines in the clear west,
I sit and hear the blithe song sparrow sing
His strain of rapture not to be suppressed;
Pondering life's problem strange, while death draws near,
I listen to his dauntless song of cheer."

The great number of these sparrows is surprising and notwithstanding the many mishaps which befall them, they seem to be steadily increasing. Each year during their stay with us, the Fall Creek valleys are ever full of their soft sweet music.

"Sweet and true are the notes of his song;
Sweet—and yet always full and strong;
True—and yet they are never sad;
Serene with the peace that maketh glad."

While the sparrows are noted as seed eaters they do not by any means confine themselves to a vegetable diet. During the summer, especially in the breeding season, they eat many insects, and feed their young largely upon the same food. Prof. Beal has shown that about one-third of the food of the chipping and song sparrow consists of insects, comprising many injurious beetles, such as snout and leaf beetles, many grasshoppers, wasps and bugs. On the whole their food consists mainly of the injurious species. Mr. Nehrling, the eminent ornithologist, considers the song sparrow one of our most useful birds from the eagerness with which it sets upon injurious caterpillars, grasshoppers and leaf-eating beetles, to say nothing about the cabbage worms and moths it destroys;

while the persistency of its search for rose bugs, cut-worms and all kinds of beetles rivals that of the most ardent entomologist. The canker-worm is a favorite food with them.

“Grudge not the wheat
Which hunger forces birds to eat;
Your blinded eyes, worse foes to you,
Can’t see the good which sparrows do.
Did not poor birds with watching rounds,
Pick up the insects from your grounds,
Did they not tend your growing grain,
You then might sow to reap in vain.”





WOOD THRUSH.
(*Turdus mustelinus*).

CHAPTER XIX.

April 30—May 6.

THE WOOD THRUSH.

Order—Passeres.

Family—Turdidæ

Genus—Turdus.

Suborder—Oscines.

Subfamily—Turdinæ.

Subgenus—Hylocichla.

Species—Turdus mustelinus.

Length—7.50 to 8.25; wing, 4.10 to 4.50; tail, 3.00 to 3.30.

Migration—North, April; south, September.

“He has a coat of cinnamon brown,
The brightest on his head and crown,
A very low cut vest of white
That shines like satin in the light,
And on his breast a hundred spots,
As if he wore a veil with dots;
With movement quick and full of grace,
The highbred manner of his race;
A very prince of birds is he
Whose form it is a joy to see.”

Of the three hundred species of the family Turdidæ, composed of the thrushes, robin and bluebird, about one hundred and fifty belong to the subfamily Turdinæ, which is composed of the tree thrushes. Twelve of these are found in the United States. As a rule, they are found in the woodland parts of our country and are strictly migratory. They are all vocal, and some, like the wood thrush, are very fine songsters. The Darwinian theory of evolution is very generally accepted as

true. Accordingly, it is believed that the birds have descended or rather ascended from reptilian ancestors. One of the evidences of this is the fact that we find scales upon the tarsi and toes of the birds, which in some measure correspond with those of the reptiles. Because of the fact that the tarsi of the thrushes are covered in front by a single scale and that they have the most perfected vocal organs, a majority of the scientists have placed them in the highest rank of our birds. Mr. Frank Chapman in his *Bird Life* says: "Without pausing to discuss the value of the characters on which this classification is made, there can be no question that from an aesthetic standpoint the thrushes possess in a greater degree than any other birds those qualifications which make an ideal bird," and Mabel Osgood Wright most appropriately calls them The Silver Tongued Family.

The wood thrush, a member of this family, is the largest of our thrushes except the robin. In appearance the sexes are alike. The bill of the adult is of a moderate length, rather stout, slightly convex and keeled above, with a sharp notched tip and brown yellowish base; white ring around the eye, which is large, full, the pupil black and the iris of a dark chocolate color; whole upper parts are of a brown rufous color brightening into reddish on the head, and inclining to an olive on the rump and tail; chin, white; throat and breast white, tinged with a light buff color, and beautifully marked with pointed spots of black and dusky, running in chains from the sides of the mouth, and intersecting each other all over the breast to the belly with the vent of pure white; the legs are long, and, as well as the claws, of a pale flesh color, or almost transparent. They frequent copses, groves of young trees and rocky glens, particularly if there is a stream of water near by, and with these conditions existing at Buzzard's Roost, many of them are to be found there.

The range of the wood thrush extends from Honduras and the Bermuda Islands north through the eastern United States to Quebec and west to Kansas and North Dakota. It winters south from Florida and Texas, and breeds from Georgia and southern Missouri north throughout its northern range. They mate soon after their arrival at the north. Their

nest may sometimes be found near to the ground, but usually is from fifteen to twenty-five feet above it in the crotch of a bush or upon the limb of a tree. The nest is made of leaves, weed stems, roots, rags, strips of paper and mud. The eggs, three to five of which constitute a clutch, are blue like those of the robin. Incubation lasts twelve days and the young leave the nest in about the same length of time. During the period of incubation the bird sits closely and will allow a person to approach within a few feet of the nest. It has been said that when large portions of the country were covered with dense forests, the wood thrush was a very shy bird, and that it was difficult to get close to it, but at Buzzard's Roost we have had them to nest within two hundred feet of the cottage, and to alight in the yard and eat with the domestic fowls.

Professor Forbes, who examined and made a study of many of the stomachs of these birds, found that seventy-two per cent. of their food consisted of insects, the greater portion of them being ground-inhabiting forms. One specimen had stuffed itself with rose-beetles and others had eaten large numbers of ants and crane-flies. Twenty per cent. of their food consisted of fruits, much of which were wild fruits obtained from their haunts.

But that concerning the wood thrush which deserves the most attention is its song. As I have already said, one of the reasons why the family of thrushes are classed as the highest order of our birds is their gift of song; and of this family, in this respect, the wood thrush by many is and has been regarded as at the head of the list. It was this that made it the favorite of Audubon and Wilson. Audubon says that it was its sweet notes that enlivened him in the solitary and dense forest, at twilight and dawn. Wilson says: "But at whatever time the wood thrush may arrive, he soon announces his presence in the woods. With the dawn of the succeeding morning, mounting to the top of some tall tree that rises from a low thick-shaded part of the woods, he pipes his few but clear and musical notes in a kind of ecstasy; the prelude, or symphony to which, strongly resembles the double tonguing of a German flute, and sometimes the tinkling of a small bell; the whole song consists of five or six parts, the last note of

each of which is in such a tone as to leave the conclusion evidently suspended; the finale is finely managed and with such charming effect as to sooth and tranquilize the mind, and to seem sweeter and mellowed at each successive repetition."

And this recalls that some one has said: "Who can describe the song of a bird? Poets and prose writers alike have lavished epithets on the nightengale and mocking bird, wood thrush and veery. Yet who, till he has heard one, can imagine what its song is like?" All that I can say in the attempt is, that my wood thrushes at Buzzard's Roost, as the light of day is going out, down over the hill from the cabins, sing their sweet "Noli-a-e-o-noli-nol-aeolee-lee."

"From out of the forest depths,
Clear, sweet, and strong,
Floats on the evening wind,
Shy bird, thy flute-like song."

I am in accord with my friend Paul Mavity when he writes: "To me the song of the birds is like a sweet prophesy of eternal life, a foretaste of heaven, an invitation to be worthy of paradisaal joy. It is like the poetry of young love or of old love kept ever young by chastity, and is best heard by the ears of love itself. Come into the woods with us and listen to the birds, and your faith shall be strengthened and your peace restored." And this is especially true if we are listening to the wood thrush, whose "calm restful song," as Mr. Chapman says, "rings through the woods like a hymn of praise rising pure and clear from a thankful heart. It is a message of hope and good cheer in the morning, a benediction at the close of day, 'come to me.' The flute-like opening notes are an invitation to his haunts; a call from nature to yield ourselves to the ennobling influences of the forest."





BROWN THRASHER.
(*Harporhynchus rufus*).

CHAPTER XX.

May 7—May 13.

THE BROWN THRASHER.

Order—Passeres.

Suborder—Oscines.

Family—Troglodytidæ

Subfamily—Miminæ.

Genus—Harporyhynchus.

Subgenus—Methriopterus.

Species—Harporyhynchus rufus.

Length—10.50 to 12.00; wing, 4.10 to 4.60; tail, 5.00 to 5.75.

Migration—North, March; south, September.

“Before the quick’ning of the grass,
When violets blow.
And to and fro
O’er folded buds the bleak winds pass,
A thrush upon the elm tree near
Sings with reassuring sweetness,
‘Soon will end this incompleteness,
When June is here- When June is here!’”

The family Troglodytidæ, composed of the thrashers and wrens, is divided into two sub-families, namely, Miminæ composed of the thrashers, mocking birds and catbirds, and Troglodytinæ, composed of the wrens. The former has in it about fifty species, and while they are all American birds, only a dozen species reach the United States, and these rank among our best song birds.

The brown thrasher, like the golden-winged woodpecker, has many names, some of which are the ground thrush, tawny thrush, red thrush, brown mocking bird, French mocking bird

and English mocking bird. Wilson called it the ferruginous thrush, *turdus rufous*, and classed it in the family *turdidæ*, and it is now commonly called the brown thrush. This is an error. He has, however, some of the characteristics of the thrushes, namely, their tawny coloring and spotted breast, and like them, he is a fine singer. And "certainly," as Miss Blanchan says, "his bold, swinging flight and habit of hopping over the ground would seem to indicate that he is not very far removed from the tree thrushes. But he has one undeniable wren-like trait, that of twitching, wagging and thrashing his long tail about to help express his emotions. It swings like a pendulum as he rests on a branch, and thrashes about in a most ludicrous way as he is feeding on the ground upon the worms, insects and fruit that constitute his diet."

The bill of the brown thrasher is very long, heavy at the base, curved, pointed, black above and yellowish below, and much like that of the cuckoo, except that it is beset with strong bristles at the base; iris of the eye, brilliant yellow; region about the eyes, light brown; chin, white; upper parts of the body, reddish brown, darkest on the wings; wings, short, heavy and reaching back only to the base of the tail; lesser and greater wing coverts tipped with white; tail very long, well rounded, of a reddish brown, droops below the wings and opens and shuts like a fan; underparts of the body white with black spots forming longitudinal streaks; tarsi, long and strong; feet, long and well adapted to a life of scratching for a living among the leaves in the thickets. In appearance the male and female are much alike; the latter may be distinguished from the former by the white on the wing being narrower, and the spots fewer on the breast.

The brown thrasher is a migrant whose range extends from the Gulf States north to Manitoba, Maine and Ontario and west to the Rocky Mountains. It comes north in the latter part of March and in April and returns south in the latter part of September and the first part of October. It is most common in the Carolinian zone, where it rears two broods in a season. Those that come north usually nest in May. The nest is built on the ground or near to it in a bush. At Somerleaze we have had a pair of them for several years. A favorite

place for their nest has been on a lower limb, covered by an overhanging one of silver spruce which stands on the front lawn. The nest is roughly made of small sticks, twigs and rootlets and lined with finer rootlets and hair. By the latter part of May three to five eggs have been laid. The ground-work of the eggs varies from a white or creamy color to a very pale greenish blue and are speckled over the entire surface with reddish brown. My observation confirms Mr. Dugmore's statement that, "while on the nest these birds, like their relatives the wrens, sit very close, allowing themselves to be almost caught, but once they leave the nest their manner changes and they become intensely noisy, making a great pretense of attacking the intruder, uttering repeatedly their harsh, scolding notes." One afternoon I attempted to show my little grandson the young birds in the nest, by holding him up in my arms and lifting the overhanging limb so that he could look in upon them. The old birds discovered what I was doing and made a fierce attack upon us by repeatedly flying into our faces and striking at our eyes with their beaks, and fearing that they might injure the lad, I retreated.

When feeding, the brown thrasher runs over the ground very much like a robin and scratches among the leaves and other debris very much like the chickens do, and sometimes they throw the leaves and other debris up and over their backs. We are indebted to Sylvester D. Judd, assistant ornithologist, U. S. Department of Agriculture, for quite a full knowledge of their food. He says, "the proportions of the different elements of their food, as determined by an examination of 121 stomachs collected from Maine to Florida and as far west as Kansas, is as follows: Animal matter, 63 per cent.; vegetable, 35; mineral, 2;" and that "the economic relation of the brown thrasher to agriculture may be summed up as follows: Two-thirds of the bird's food is animal; the vegetable food is mostly fruit, but the quantity taken from cultivated crops is offset by three times that volume of insects. In destroying insects they are helping to keep in check organisms the undue increase of which disturbs the balance of nature and threaten our welfare."

As we have already said, the brown thrasher is a ground

gleaner, but his songs are from the topmost limbs of some bush or tree near by where his mate is nesting. On my way from the interurban station to Buzzard's Roost there stood a very large oak in a field close by an osage orange fence. Many times from the top of that tree have I heard a brown thrasher singing, evidently for his mate who was nesting in the osage orange bushes, and,

"'Twas a song that rippled and reveled and ran
Ever back to the note whence it began,
Rising and falling and never did stay,
Like a fountain that feeds on itself all day."

Mr. Cheney in his Wood Notes Wild describes the manner of his singing by saying: "On a fine morning in June, when he rises to the branch of a wayside tree, on the top of a bush at the edge of the pasture, the first eccentric accent convinces us that the spirit of song has fast hold on him. As the fervor increases his long and elegant tail drops; all his feathers separate; his whole plumage is lifted, it floats, trembles; his head is raised and his bill wide open; there is no mistake, it is the power of the God. No pen can report him now; we must wait till the frenzy passes."

At Somerleaze he sings from the top of a white oak which stands upon the lawn, and up there, as Lucy Larcom says:

"The brown thrush keeps singing, 'a nest do you see,
And five eggs hid by me in the juniper tree?
Don't meddle! don't touch! little girl, little boy,
Or the world will lose some of its joy!
Now I'm glad! now I'm free!
And always shall be,
If you never bring sorrow to me.'"



CATBIRD.
(*Galeoscoptes carolinensis*).
♂ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO.

CHAPTER XXI.

May 14—May 20.

THE CATBIRD.

Order—Passeres.

Suborder—Oscines.

Family—Troglodytidae.

Subfamily—Miminæ.

Genus—Galeoscoptes.

Species—Galeoscoptes carolinensis.

Length—8.00 to 9.35; wing, 3.45 to 3.75; tail, 3.70 to 4.25.

Migration—North, March; south, October.

"He sits on a branch of yon blossoming bush,
This madcap cousin of robin and thrush,
And sings without ceasing the whole morning long;
Now wild, now tender, the wayward song
That flows from his soft, gray, fluttering throat;
But often he stops in his sweetest note,
And shaking a flower from the blossoming bough,
Drawls out, 'mi-eu, mi-ow!'"

The catbird gets its common name from its well known note, "mi-eu, mi-ow," which it drawls out like a half-grown kitten. Formerly it was classed with the fly-catchers. Alexander Wilson changed it to the thrushes. In doing so he says, "As he never seizes his prey on wing, has none of their manners, feeds principally on fruit, and seems to differ so little from the thrushes, I think he more properly belongs to the latter tribe than to any other genus we have. His bill, legs and feet, place and mode of building, the color of the eggs, his imitative notes, food and general manners, all justify me in removing him to the genus." Coues in his Key to North Ameri-

can Birds places him in the family *turdidæ*, composed of the thrushes and the sub-family *miminæ*, composed of the mocking thrushes. This sub-family, however, is now a sub-family of the family *troglodytidæ*, which, as we have heretofore seen, is composed of the wrens, thrushes, etc. And this is why he has been recognized as the "madcap cousin of the robin and thrush," and is now the cousin in fact of the mocking bird, who in many respects he so much resembles. In his general form, he is slender and graceful. His bill is well shaped, slightly arched, and of black color; eyes, brown; general plumage above is slaty-gray; the head, tail and inner webs of the primaries being of a brownish black; cheeks, chin, and underplumage of a deep bluish-gray, and the under-tail about the vent is a distinct patch of dark chestnut. In appearance the sexes are alike.

The range of the catbird extends from Panama and Cuba north to British Columbia and Saskatchewan and west rarely to the Pacific Coast States; breeds from the Gulf States north, and winters from Illinois south. It comes north about the middle of April and returns south about the middle of October. Mating begins soon after their arrival north. Generally they rear two and sometimes three broods in a season.

The nest of the catbird, as Miss Blanchon has well said, "is like a veritable scrap-basket, loosely woven of coarse twigs, bits of newspaper and rags, and this rough exterior is softly lined and made fit to receive the four to six pretty dark green blue eggs to be laid therein." The nest is placed in briars, vines or low bushes not more than five to ten feet from the ground. Those that have been built about our homes have been built in the lilac, syringa and bridle-wreath bushes and the honeysuckle vines. A few years ago I spent the summer at Elmhurst instead of Somerleaze. That summer a pair of catbirds came to our backyard and we became quite well acquainted with each other, so much so that they would come to me when I called them. One morning while working in the garden, I noticed that they were hunting a nesting place, and that a crotch in a syringa bush in the corner of the yard seemed to please them. I gathered a handful of leaves, twigs and grass and placed them in the bush to coax them to build

there. On my return home at night I found that they had carried away every bit of my material and used it in building their nest in a bush near by in my neighbor's yard. They remained about our home all summer, and as I sat in the yard, I could

"Listen to his rondel,
To his lay romantical,
To his sacred canticle,
Hear him lifting!
See him tilting
His saucy head and tail, fluttering
While uttering
All the difficult operas under the sun
Just for fun."

Towards the last of September I noticed that one of my catbirds had gone. Then I wondered if it was the male, for it is said that he comes first in the spring. The other bird remained until about the middle of October. About four o'clock each morning I could hear it near by mewing. I felt sorry for it in its loneliness. One evening I heard it making the same noise, and in searching for it, found it in a woodbine on my neighbor's house, just next to where I sleep, eating the fruit of the vine. No doubt this was what it was doing when I heard it in the morning. The next spring my catbirds came back and built their nest in the very crotch in the syringa where I had placed the material for them the year before, and they have returned to me year after year since then. In 1904 they commenced building their nest May 15th and the last I saw of them was the 4th of October. To-day as I write this chapter I look out of the window and see their nest filled with snow, and I wonder where my catbirds are. Probably in Panama basking in the sunshine and having a really good time—at least, I hope so. I shall confidently expect them again when the springtime comes.

Much has been written in commendation and condemnation of the song of the catbird. The cat mew of the bird, perhaps, more than anything else has been the cause of bringing his song into disrepute. As we have seen, he is a member of the sub-family *miminæ*, and a cousin of the mocking bird, who he resembles, not only in his ability to mimic the songs of

other birds, but also in appearance. I have been much interested in his singing and with his songs, many of which to me have been delightful. He has a dozen or more songs or parts of songs which he sings, many of them being the broken and jumbled notes of other birds, and some of them their songs entire. I have heard him mimic or mock the Baltimore oriole, the whistle of the tufted titmouse, the cooing of the mourning dove, the call of the killdeer and the song of the brown thrasher. Unlike his cousin the brown thrasher, who sings from the topmost branch of the tallest tree, the catbird sings from the deep foliage of a tree or bush. This habit of his is beautifully portrayed by Cora Mae Cratty in her lines *Only a Song*, in which she says:

"Out in the apple tree, swinging and singing,
Swinging and singing its heart's jubilee,
Sits a gray catbird in modesty clinging
Deep in the foliage where no eye can see.
List to his roundelay, rippling and ringing,
Hour after hour, the green branches through.
Showers of song o'er sad hearts thus he's flinging,
Cheering and healing while hidden from view."

Of the song of the catbird, Audubon says: "It is comprised of many of the gentler trills and sweeter modulations of our various woodland choristers, delivered with apparent caution, and with all the attention necessary to enable the performer to please the ear of his mate. Each cadence passes on without faltering; and if you are acquainted with the song of the birds he so sweetly imitates, you are sure to recognize the manner of the different species. When the warmth of his loving bosom engages him to make a choice of the notes of our best songsters, he brings forth sounds as mellow as those of the thrasher and mocking bird. These medleys, heard in the calm and balmy hours of retiring day, always seem to possess double power, and he must have a dull ear, indeed, and with little relish for the simple melodies of nature, who can listen to them without delight."

The usefulness and harmfulness of a bird depends in a great measure upon the food it eats. Of the food of the catbird, Dr. Sylvester S. Judd, who examined two hundred and

thirteen of their stomachs, says forty-four per cent. of their food consisted of animal matter, and fifty-six per cent. of vegetable matter. Ants, beetles, caterpillars and grasshoppers constituted three-fourths of the animal food, the remainder being made up of bugs, miscellaneous insects and spiders. One-third of the vegetable food consisted of such fruits as are cultivated, and the rest was mostly of wild fruits, including cherries, dogwood, sour gum, elderberries, greenbrier, spice berries, black alder, sumac and poison ivy. In his report he says: "By killing the birds their services as insect destroyers would be lost, so the problem is to keep both the birds and the fruit. Experiments conducted by this division show that catbirds prefer mulberries to strawberries and cherries, hence it may be inferred that these two latter crops may be protected by planting the prolific Russian mulberry, which, if planted in hen yards or pig runs will afford excellent food for the hens and pigs, besides attracting the birds away from more valuable fruit. Wild cherry, buckthorns, dogwood, wild grapes and elder should be encouraged by the farmer who wishes to escape the depredations of the birds and still receive their benefits." This is just what we are doing at Buzzard's Roost, and in so doing are hoping that what Dr. Judd advocates is the true solution of the much discussed subject.



HOUSE WREN.
(*Troglodytes aedon*.)
About Life-size.

©COPYRIGHT 1909, BY A. W. MUMFORD, CHICAGO

CHAPTER XXII.

May 21—May 27.

THE HOUSE WREN.

Order—Passeres.

Suborder—Oscines.

Family—Troglodytidae.

Subfamily—Troglodytinæ.

Genus—Troglodytes.

Species—Troglodytes aedon.

Length—4.25 to 5.25; wing, 1.90 to 2.15; tail, 1.72 to 2.08.

Migration—North, April; south, September.

"Blythely, twitting, gayly flittering,
Thro' the budding glen;
Gold-crested, sunny breasted,
Goes the tiny wren.
Peeping, musing, picking, choosing,
Nook is found at last;
Moss and feather, twined together—
Home is shaped at last."

The subfamily Troglodytinæ is composed of the wrens. Of these there are about one hundred species or varieties and most of them are confined to America. They are small, fearless, excitable, plain colored birds. Most of them have characteristic scolding notes with which they express their displeasure or alarm and most of them are good singers.

The house wren, troglodytes aedon, is one of our smallest birds, being only about three-fourths as large as the English sparrow. Its bill is rather long, sharp, and well adapted to the taking of the insects, their eggs and larvae upon which it lives; upper part of head and body of an umber brown; back usually marked with indistinct bars; wings and tail, darker brown; wings are barred and extend beyond the rear of body; tail stands obliquely, and is longer than those of the other

wrens and distinctly barred; underparts of the body of a whitish color. The male and female are alike in size, color and general appearance.

The range of the house wren extends from the Gulf of Mexico north to Manitoba, and in the United States west to the Mississippi River. It winters south of the Carolinas. It comes north in March and April and returns south in September and October. It breeds throughout its range northward from central Indiana, Illinois and southern Ohio. The nesting season begins about the tenth of May. It nests in almost any kind of a suitable hole or cavity and will take possession of a bird box or gourd, if not prevented from doing so by the English sparrows. Four to eight whitish eggs, uniformly and minutely speckled with purplish brown, constitute a clutch. Two and sometimes three broods are reared in a season.

Many interesting stories have been narrated about the places which have been taken possession of by these birds for nesting purposes. One of these is as follows: "The home of a wren, a few miles from Petersburg, Va., furnishes the strangest case in the matter of queer habitations yet discovered. This country is the site of one of the most dramatic epochs of the civil war, and frequently the bones of unburied soldiers are picked up. Recently a rusty old skull was found in which one of these wrens chose a shelter. The skull, when found, was hidden in a patch of shrubbery. The interior of the one-time pate was carefully cleaned out, and nestled in the basin of the bony structure was the birthplace of many a baby wren. The skull made a perfect domicile. A bullet hole in the rear formed a window. An eyeless socket was the exit and entrance to the grim home." The nesting habits of the wren are interesting because, as I have said, of the strange places frequently selected by them for their nests and because of the fact that they build many sham nests. Why they build these has been a mystery to bird students. Some think they do it to prevent other birds from using the holes and cavities in the vicinity of their real nests. Others think that the sham nests are built for the use of the male and first brood while the female is brooding the second time and even the third time. Others think that it is done so that the male may pre-

tend to be defending them, and thus divert attention from the true nest.

I have been much interested and entertained by giving attention to the nesting of these birds. On my return to Somerleaze one evening, John King, our colored boy who was a great lover of the birds and who is now dead, told me that a pair of wrens had been about the woodyard that day looking for a nesting place. I said to him that we must help them and put up a box for them. We did so and they immediately took possession of it and commenced the work of building their nest. In a few days John told me that the English sparrows were fighting our wrens and my observations convinced me that he was right. I then got a cigar box and put it up for them down in front of the house so that I could watch and study them. This time I made the hole for their entrance so small that English sparrows could not enter it. That was years ago, and ever since then I have had wrens in that box. Five years ago I put up a gourd for the wrens in a catalpa tree which stood in front of Elmhurst, about ten feet from the porch, and every year since we have had the companionship of a pair of them. One February morning in 1903, when I opened the door to go down town to business I discovered that the wind had blown down and broken the gourd. I picked up the pieces of the gourd and nest. They recalled the lines of Margaret E. Sangster:

"Never again in this empty nest
Of love that mated, the love that sung;
The birds are flown to the east and west
The husk of their homestead has no tongue
To tell of the sweet, still summer eves,
Of the sweeter, merrier, summer days;
Only a nest in the falling leaves,
And silence here in the wood's dark maze.

But I hold in my hand a dainty thing,
Woven of feather and fluff and reed,
Once 'twas the haven of breast and wing,
And the shelter of callow and helpless need.
It tells of a passionate gladness gone;
It dumbly whispers that love is best;
That never a night but has a dawn—
And I drop a kiss in my empty nest."

I carried the wreck into my study for examination and the examination was full of interest. The gourd measured sixteen inches in circumference, and the birds filled it full excepting the nest proper, which was somewhat egg-like in shape, with the small end to the rear. The nest inside measured two by three inches and was beautifully canopied with hair and feathers. It was constructed of five layers of materials. The first and main layer was made of 307 tip ends of limbs, which measured from a half inch to six and one-half inches in length, and all of them, except one, seemed to have been obtained from maple trees. The second layer was made of midribs of catalpa leaves; the third of rootlets and strips of bark; the fourth of catalpa leaves; and the fifth of hair and very small bird feathers. Often have I seen Tommy Wren come to the door of that nest and sing to Jenny, as only a wren can sing, and he had good cause for doing so, for most certainly she had been provided with one of the snuggest and most dainty of homes, and there was no reason why she should not be happy.

In the autumn of 1876 Judge Robert S. Taylor and I were attending court at Bluffton, Indiana, and stopping at the same boarding house. One evening we were sitting in the front yard under a pear tree and eating of its fruit. He said to me: "Mr. Woollen, have you ever thought of it, that most of the best things of this world are its smallest things? For instance, of all the pears the Seckle, the smallest of them, is the most delicious and the best." And he was right. The house wren, as I have said, is one of our very smallest birds, and yet it is one of the very best. It is almost exclusively an insectivorous bird, and this is why it is so valuable to us. More especially is this so because of the fact that it prefers to build its nest about our homes, and thus it becomes the protector of our gardens and orchards. It is one of the most companionable of birds, and if not abused, becomes very tame and confiding. A gentleman told me a true story, illustrating this fact. His sister, who lived in the country, and was a lover of birds, put up a box on a post in the side yard for a pair of wrens to nest in. They took possession of the box, built their nest, and Jenny Wren was brooding when one morning Tommy Wren came

flying wildly about the lady and seemed much distressed. She said to him, "Go away, Tommy; I haven't time to talk to you now." Tommy persisted, and fearing that something had happened to their home, she went into the side yard to see and to her consternation discovered that a big snake had crawled up the stake and was trying to get at Jenny. She called to the gardener, who was mowing weeds near by, and he came and cut off the snake's head, and then Tommy was happy.

The first summer after putting up the box for the pair of wrens at Somerleaze, we became well acquainted with each other. A tree stood close by their nest, the limbs of it reaching to about fifteen feet of it. I could go to the nest at any hour of the day and tap on the stake and say, "Come to me, Jenny Wren," and she and Tommy would come and alight on the limbs next to the nest, and then Jenny would scold me at a great rate, as much as to say, "Why are you disturbing my home in this manner?" True to their habit, this pair of wrens built three sham nests. A pleasing incident connected with this pair of wrens was this: The next spring I was out at the farm planting shrubbery when all at once I thought I heard a noise close by like that of Jenny Wren when she was scolding me. I looked up into a haw bush close by from which the noise seemed to come, and sure enough, there was my Jenny Wren. At least I concluded it was my Jenny Wren, for she followed me about the yard and scolded me as vigorously as she had the year before. If I am right in my conclusion, is it not interesting to remember that this pair of little birds had returned from the far distant Southland with unerring certainty to the very spot where they had their home last year, and that Jenny had not forgotten how to scold?

The house wren's song is a merry one, sudden, abruptly ended, and frequently repeated. Mr. Ernest Seton Thompson labels his picture of it "The Irrepressible," and no doubt he so named it from its song and nervous restlessness. It has been my observation that Tommy does all the singing and Jenny all the scolding. I have never heard Jenny sing and I have never heard Tommy scold, although he stays close by Jenny while she does. Tommy is a most devoted husband and father. While Jenny is brooding, he constantly comes close to

her and sings his sweetest notes. Quite often he flies to the entrance to the nest and looks in, as much as to say, "How is it with you, my dear?" As one writer has said, "Their speech is a revelation of supreme content, a liquid, flexible measure with ripples and cascades bubbling through and over a dash of pure color. There are hours when he sings with such force that his whole little body catches the keynote and natural rhythm; the melody becomes compounded of his very substance, body of his body and soul of his soul. It is an inundation of musical notes, cascadic, cataclysmic, the tide of song rising till it drowns his personality; he is no longer a bird but an animated song." And this reminds me of the words of Mr. Simeon Peace Cheney. He says, "The horse neighs, the bull bellows, the lion roars, the tiger growls,—the world is full of vocal sounds; only the birds sing. They are Nature's finest artists, whose lives and works are above the earth. They have not learned of us; it is our delight to learn of them. To no other living things are man's mind and heart so greatly indebted. Myriads of these beautiful creatures, journeying thousands of miles over oceans and continents, much of the way by night—to avoid murderers!—return, unfailingly as the spring, prompt even to the day and hour, to build their cunning nests and rear their young in our orchards and door-yards, to delight us with their beauty and grace of movement, and, far above all, to pour over the world the glory of their song."





CHAPTER XXIII.

May 28—June 3.

THE KINGBIRD.

Order—Passeres.

Suborder—Clamatores.

Family—Tyrannidæ.

Genus—Tyrannus.

Species—Tyrannus tyrannus.

Length—8.00 to 9.00; wing, 4.45 to 4.75; tail, 3.40 to 3.75.

Migration—North, April; south, September.

“Far in the south, where vast Maragnon flows,
And boundless forests unknown wilds enclose,
Vine-tangled shores, and suffocating woods,
Parched up with heat, or drowned with pouring floods;
Where each extreme alternately prevails,
And Nature sad ravages bewails;
Lo! high in air, above those trackless wastes,
With Spring's return the kingbird hither hastes.”

The family Tyrannidæ is composed of the flycatchers and has in it about three hundred and fifty species. Most of these are found in tropical America, where they are much appreciated as insect destroyers. About thirty-five species are found in the United States. They are classed in the sub-order Clamatores, which is composed of the perching songless birds. They have short legs, a short neck, large heads and broad, flat beaks, and bristles at the base, which are of service to them in entangling the insects upon which they live. Among the flycatchers the kingbird undoubtedly deserves a high rank. He is also called the bee bird, bee martin and tyrant flycatcher.

The bill of the adult male kingbird is broad at the base, overhanging at the point, and notched and of a glossy black color, and furnished with bristles at the base; the eye is hazel; the plumage on the crown, though not forming a crest, is frequently erected and shows a rich patch of orange or flame color, but when the feathers lie close this is altogether concealed; the head and tail are nearly black; the general color above is a dark slaty ash; the wings are more of a brownish cast; the quills and wing coverts are white; the tail is even at the end, and tipped with white; the upper part of the breast is tinged with ash; the throat and all of the lower parts are pure white; the legs and feet are black, seamed with gray. The adult female differs from the male in appearance in being more brownish in the upper parts, has a smaller streak of paler orange on the crown, and a narrower border of duller white on the tail.

Of the migration of the kingbird, Mr. Wells W. Cooke in his bulletin on the Distribution and Migration of North American Warblers, says; "Its summer home—from Newfoundland to British Columbia—has a width of 2,800 miles; its paths of migration converge until in the southern United States from southern Florida to the mouth of the Rio Grande their total width is 900 miles. Continuing southward, the eastern edge of this path or belt appears to extend from southern Florida to Yucatan, but the western edge is less sharply defined; few individuals of the species seem to travel west of a line drawn from Corpus Christi to Tabasco. Thus in the latitude of southern Yucatan the migration path is scarcely 400 miles wide, and the great bulk of the species probably moves in a belt less than half this width."

In the more southern parts of its breeding range, mating and nidification begins about the middle of May, while in northern New York and our Northwestern States they rarely begin nesting before June. Their nests are usually built in a tree near to a dwelling, or in an orchard or beside a field. For many of the illustrations of this book I am indebted to my friend Rev. Dr. Hiram W. Kellogg, who is a great lover of the birds and a close student of nature. Many of the photographs were taken at Buzzard's Roost. Accompanying this



An unusual home for the kingbird

Kellogg



Kellogg

Young King birds

chapter are two of his pictures, one showing an unusual home for the kingbird and the other young kingbirds. When the kingbirds have once selected a nesting site, like many other species, if not disturbed, they will return to it for many years. This has been true of a pair of them which have nested at Somerleaze. The nest is usually well and compactly built of weeds, grass, moss, rootlets, small twigs, and lined with fine grass, horse-hair and other light material. The male assists in the construction of the nest, and to some extent in the duties of incubation. In doing this, however, he shows his restlessness and pugnacity, for every few minutes he elevates his crest and looks around for a possible enemy. The number of eggs varies from three to five. The ground color of the eggs varies from white or pale creamy white to a very faint rose pink, and are spotted and blotched with chestnut brown and light lilac gray. Incubation lasts from twelve to thirteen days, and in about two weeks the young are able to leave the nest. Two broods are sometimes reared. The young are fed exclusively upon insects.

The feeding habits of the kingbird are interesting—and in this respect the flycatchers are all alike. Flycatcher does not mean a bird that lives on flies exclusively, as the name would seem to imply, but one which, as a rule, lives on flying insects which it catches while in flight. For instance, the kingbird will be seen seated on his perch, which at Buzzard's Roost is the topmost branch of a bitter hickorynut tree that stands near the cottage; from this perch he sallies forth and darts upon his prey in midair. It is wonderful how far away he can see passing insects, and with what certainty he catches them, and when he does this, if you are near by you can hear the click of his mandibles. Having caught his prey, he wheels about, returns to his point of observation and resumes his watch for more. In returning he makes much noise and seems to be rejoicing over his success, and so Mr. Ernest Seton Thompson has labeled his picture of him, "Victory."

Professor Beal of the United States Department of Agriculture made an extensive examination of the food of the kingbird, and his report of his investigations shows that about ninety per cent. of it consists of animal matter, principally

beetles, grasshoppers, butterflies, spiders, wild bees, wasps and millipods. I have said that the kingbird is sometimes called the bee-bird and bee martin. This comes of the fact that it has been accused of being a bee robber. Upon this subject Professor Beal's report shows that of 281 stomachs examined by him only 14 contained the remains of honey bees. In these were 50 honey bees, 40 of which were drones; 4 certainly were workers; of 6 he was not certain. The stomachs examined contained 19 robber-flies, an insect injurious to bees, and more than an equivalent for the worker bees eaten. It is said that the kingbird ejects in pellets the indigestible portions of its food, such as the wing covers of beetles, the legs of grasshoppers and the seeds of berries.

The common name, tyrant flycatcher, and the scientific name, *tyrannus tyrannus*, of the kingbird was given to it because of the fact that it fights and tyrannizes over other birds. This is true only as to a limited number of birds. It does fight the hawks, eagles, crows and jays. I have never seen it fighting any others, except the red-headed woodpecker, and it exceptionally. As I have said, we have had a pair of these birds with us at Somerleaze for several years. In 1904 they built their nest in an elm which stands close to our summer home. In this tree a pair of scarlet tanagers and of English sparrows also had their nests within a few feet of that of the kingbirds, and so far as I was able to see they all lived together harmoniously. But this same pair of kingbirds fought the crows ferociously. The crows had only to come within sight during the nesting season to be attacked by these mites. I have seen them pursue the crows, overtake them, pick at their eyes, pull out their feathers, and prod them beneath until they were almost exhausted. At Buzzard's Roost on a September day I saw two of them pursuing three crows overhead and down Fall Creek. The crows tried hard and in vain to turn aside into the timber on both sides of the stream, but the kingbirds would not let them do it. If the crows turned to either side, the kingbirds instantly were on that side and between them and the timber, compelling them to change their course, and thus they pursued them and perscuted them for a mile or more. It is evident that these birds attack and pur-

sue the hawks, crows and jays, not from mischievous motives, but in defense of their nests and young, and because of this fact it is well for farmers to protect them, since by doing so they have on guard sentinels for the protection of their domestic fowls and their nests from the rapacious hawks and the egg robbing of the crows and jays.

The kingbird was one of the favorites of Alexander Wilson, the ornithologist, who not only had a scientific knowledge of the value of our birds, but could tell what he knew about them both in prose and verse. In his account of the kingbird he makes the following pathetic appeal for its protection:

"Ah friend! good friend! forbear that barbarous deed,
Against it valor, goodness, pity plead;
If e'er a family's grief, a widow's woe,
Have reached thy soul, in mercy let him go!
Yet, should the tear of pity naught prevail,
Let interest speak, let gratitude prevail;
Kill not thy friend who thy whole harvest shields,
And sweeps ten thousand vermin from thy fields;
Think how this dauntless bird, thy poultry's guard,
Drove every hawk and eagle from thy yard;
Watched round thy cattle as they fed, and slew
The hungry blackening swarms that round them flew;
Some small return, some little right resign,
And spare his life whose services are thine."





PHOEBE.

CHAPTER XXIV.

June 4—June 10.

THE PHOEBE.

Order—Passeres.

Suborder—Clamatores.

Family—Tyrranidæ

Genus—Sayornis.

Species—Sayornis phoebe.

Length—6.25 to 7.00; wing, 3.25 to 3.55; tail, 3.00 to 3.40.

Migration—North, March; south, October.

"A little tuft of feathers gray
That snaps its bill in eager glee
When e're a fly is caught on wing,
Full forty times calls out Phoebe."

The phoebe is variously known as the phoebe bird, peewit-flycatcher, gnat-catcher, and the bridge, barn, and house pewee. Like its cousin the kingbird, it is a member of the family Tyrranidæ, which is composed of the flycatchers. In my earliest childhood a pair of these birds annually nested under the roof and against the chimney of our cabin home, and in season, I daily heard its plaintiff note.

"So faint and far and yet so near,
'Pewee! pewee! pewee!'"

and through all the years of a long life I have always loved to know this dear little bird as the pewee. With Lowell it was otherwise, for did he not write?

"It is a wee, sad colored thing,
As shy and secret as a maid,
What ere in choir the robin sing,
Pipes its own name like one afraid.
It seems pain prompted to repeat
The story of some ancient ill,
But Phoebe! Phoebe! sadly sweet
Is all it says and then is still."

The pewee, or ornithologically speaking, the phoebe, is somewhat larger than the English sparrow. Its bill is of a glossy black color and formed exactly like that of the king-bird; the plumage of the head is subcrested, and of a deep brownish black; iris of the eye hazel; the upper parts of the body are of a dark dusky olive; wings and tail deep dusky, the former edged with yellowish white and the latter forked and widening remarkably toward the end; whole lower parts of a pale delicate yellow; legs and feet wholly black. The sexes are alike in appearance, except that the crest of the female is somewhat more brown than that of the male.

The phoebe is a bird of North America whose range extends from Cuba and Mexico north through the Eastern United States to Newfoundland and Manitoba and west to eastern North and South Dakota, eastern Nebraska, Kansas, the Indian Territory and western Texas. It winters south from North Carolina to Cuba and Mexico. Many of them remain in Florida and the southern states bordering the Gulf Coast during winter, but the majority pass beyond to Cuba and eastern Mexico. It breeds from South Carolina northward throughout its summer range. Its nest like that of the robin is made of moss, grass and mud, and lined with hair and feathers. Its nesting habits have been much modified. In former times it was a wild bird, dearly loving a cool, wet woodland retreat. There it hunted and bathed and there it built its nest in a rocky bank or on a ledge of rocks. Hence, its name, water pewee. Wilson tells us of one he found in a cave five or six feet high, formed by the undermining of water

below and the projection of two large rocks above. He writes of its surroundings as follows:

"There down smooth glistening rocks the rivulet pours,
Till in a pool its silent waters sleep,
A dark browed cliff, o'ertopped with fern and flowers,
Hangs, grimly louring, o'er the glassy deep;
Above through every chink the woodbine creeps,
And smooth-barked beeches spread their arms around,
Whose roots cling twisted 'round the rocky steep;
A more sequestered scene is nowhere found,
For contemplation deep, and silent thought profound."

In later times the phoebe has become quite domesticated and loves to build its nest about the structures which man has erected. Sometimes its nest may be found under a bridge that is constantly being used; hence, its name of bridge pewee. But its favorite place for a nest is about our dwellings and outbuildings, and this is why it is called the house pewee. The usual number of eggs is four or five. These are ovate and white, but occasionally are spotted with reddish brown. Incubation lasts about twelve days, and the female performs the greater part of the duty. She is a close sitter and loath to leave her nest. The male remains in the vicinity of the nest on watch for possible intruders, of which the cowbird is one of the most harmful. The young are large enough to leave the nest in about two weeks. Two broods and sometimes three are reared in a season.

A careful examination by Professor Beal of eighty phoebe stomachs "showed that over ninety-three per cent. of the year's food consisted of insects and spiders, while wild fruit constituted the remainder." The insects were mainly injurious kinds, including click beetles, weevils, May beetles, grasshoppers and flies. His conclusion is that "There is hardly a more useful species about the farm, and it should receive every encouragement and be protected from cats and other marauders, for it will repay such care a hundredfold." In the language of Weed and Dearbond in *Birds and Their Relation to Man*, the "Knowledge of its exceeding usefulness should win it more friends, who shall encourage its increase in every way possible, for surely there can be no straining of the

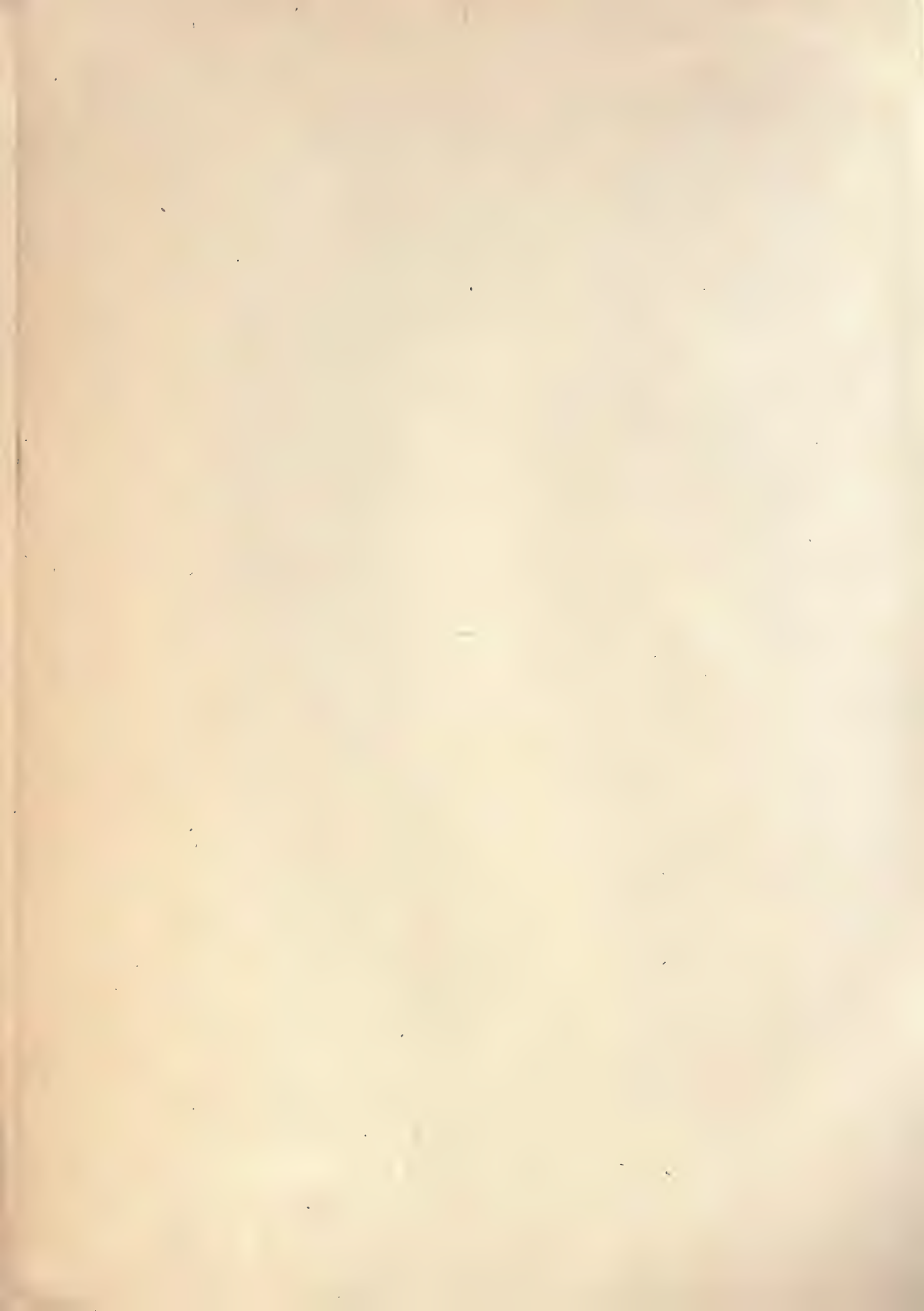
quality of mercy in protecting these feathered creatures; such mercy is thrice blessed—for it blesses first the birds, second ourselves and third our children and our children's children in transmitting to them undiminished Nature's heritage of Man's allies."

In migrating north the male pewee, like most other birds, comes first and then awaits the coming of his mate. This suggests two strange problems of bird life which as yet remain unanswered. Ornithologists tell us that the pewees mate for life. Then, why do they not travel together, and since they do not, how does the female find her mate? Perhaps the answer to the last question is, that the pewee having once determined to build its nest in a certain locality, becomes attached to it, and returns to it year after year. This being true, the female would most naturally expect to find her mate at the old nesting place. If this be so, then will you tell me how they so unerringly find the old nesting place in a journey from Cuba and Panama to Newfoundland? That the pewees do return to the same locality has been well established. Audubon speaks of having found the same pair of birds occupying a familiar nook in an old cavern which he had been accustomed to visit for a number of years. At one time he fastened to the legs of each of a brood of young birds, the offspring of this pair, a ring of silver thread; these they carried about with them for some time, and in the following spring two of them were seen in the same locality, still wearing the silver rings.

The readers of this chapter can imagine my delight, when in 1904 my gardener told me that a pair of phoebes had taken possession of the roof plate, like that in the illustration, under the northeast corner of the roof of the cottage at Buzzard's Roost and built their nest. There they incubated and reared two broods during the season. Directly after the first brood came off another pair took possession of a like place at the southwest corner of the cottage and reared a brood. The gardener thinks that the second nest was built by a pair of the young from the brood of the first nest, but I doubt it. I rejoice in the fact, however this may be, that I am to have the companionship of these birds that I have so much loved

through life. Out of that warm friendship has grown the wish that in that country which is to come—the better land—we may have the birds with us. And why not?

“Not every bird can warble sweet
Or wear a plumage gay.
The modest wren is trim and neat,
The phoebe's breast is gray,
Yet he who notes the sparrow's fall
Holds every birdling dear:
His earth is nesting place for all,
His azure skies are clear
For wings that flit from tree to tree
Or sail the clouds above.”





BRONZED GRACKLE.
(*Quiscalus quiscula aeneus*).

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO.

CHAPTER XXV.

June 11—June 17.

THE BRONZED GRACKLE.

Order—Passeres.

Suborder—Oscines.

Family—Icteridæ.

Genus—Quiscalus.

Species—Quiscalus quiscula aenus.

Length—13.00; wing, 5.55 to 5.75; tail, 5.50 to 6.20.

Migration—North, March; south, October.

“Through the winter long and dreary
Bitter night and snowy day,
Often are the blackbirds weary,
Waiting, wishing for May.”

The family Icteridæ is composed of the blackbirds, orioles and the meadow lark. All of these are American birds; the majority of them are found in the tropics. They form a connecting link between the crows and finches. With the exception of the orioles, they are gregarious after the nesting season. Some of them are good singers and some of them are not. The bronzed grackle is a member of this family. In the Middle West it is known as the blackbird. Its other names are crow blackbird, purple grackle, keel-tailed blackbird, and maize thief.

Robert Ridgway, the naturalist, first distinguished the bronzed from the purple grackle. He says that “from an almost equal familiarity with the two birds, we are able to say their notes differ decidedly, especially those of the male dur-

ing the breeding season, the 'song' of the western birds being very much louder and more musical or metallic than that of its eastern relative." The bill of the adult male bronzed grackle is heavy at the base, more than an inch long, tapering to a sharp point, and of a deep black color; iris of the eye is of yellowish white and quite conspicuous; head, neck and chest of varying color from greenish blue to purple, the neck and chest sometimes brassy green; rest of plumage above uniform bronze or brassy olive; wing coverts, secondaries and coverts of the tail, rich light violet in which the red prevails; the rest of the wings, and cuneiform tail are black, glossed with steel blue; tarsi long and feet large, which enables them to walk well. Adult female similar to the male, but decidedly smaller and much duller in color. When going only a short distance they keel their tail feathers, holding them upward from the middle, and hence their name, keel-tailed grackle.

This grackle occupies the Mississippi Valley and Great Plains as far west as the Rocky Mountains, ranging northward to the Great Slave Lake and southern Newfoundland, and east coast of southern New England. In Canada and the northern United States it is only a summer resident, but in the Southern States it is present throughout the year, and in winter its numbers are increased by millions of migrants from the north. It does not occur south of the Gulf States.

The bronzed grackle is a gregarious species, usually breeding in colonies and migrating in flocks. Evergreen trees are their favorite nesting sites, and this brings many of them to the lawns about our homes. The nest is made of grass, weeds and mud and lined with grass and feathers. The number of eggs to a clutch varies from four to six. They vary much in color. As a rule, however, the groundwork is a solid blue or green, streaked with various shades of dark brown. Incubation lasts about two weeks. Both birds share the labor of incubation. The young remain in the nest about eighteen days.

Much has been written about the "asthmatic serenade" of the bronzed grackle, and but little in appreciation of its musical qualities. Mr. John Burroughs says, "There is evidently some music in the soul of this bird at this season

(the springtime), though he makes a sad failure in getting it out. His voice always sounds as if he were laboring under a severe attack of influenza, though a large flock of them, heard at a distance on a bright afternoon of early spring, produces an effect not unpleasing. The air is filled with crackling, spluttering, spurting, semi-musical sounds, which are like pepper and salt to the ear." And this reminds me that Lowell wrote:

"Fust comes the blackbirds clatt'rin in tall trees,
And settlin' things in windy congresses;
Queer politicians, though, for I'll be skinned
If all on 'em don't head against the wind."

In regard to their economical value, Professor Beal in his report upon The Crow Blackbirds and Their Food, says: "In the selection of their food the crow blackbird is almost omnivorous. Its partiality for corn, wheat, rice, oats and others grains is well known and has been the cause of nearly all the complaints about its depredations. This diet is supplemented by various fruits, berries, nuts, seeds and insects, the latter in large proportion. When feeding on grain the birds are usually in large flocks, their depredations are plainly visible, and they are almost universally condemned. When breeding they are less gregarious, and the good work they do in the fields is scarcely noticed, although at this season the grubs and other insects devoured compensate in a large measure for the grain taken by them." Wilson philosophically says: "As some consolation, however, to the industrious cultivator, I can assure him that were I placed in his situation, I should hesitate whether to consider these birds most as friends or enemies, as they are particularly destructive to almost all the noxious worms, grubs and caterpillars that infest his fields, which, were they allowed to multiply, would soon consume nine-tenths of all the production of his labor, and desolate the country with the miseries of famine! Is not this another striking proof that Deity has created nothing in vain; and that it is the duty of man, the lord of creation, to avail himself of their usefulness, and guard against their bad effects as surely as possible, without indulging in the barbarous and even impious wish for their utter extinction?"

After the breeding season is over these birds congregate in flocks of hundreds and thousands preparatory to their migration to the South. It is then that they are accused of doing the most damage. Much less of this would occur if our forests had not been cleared away. They are very fond of the berries, seeds and nuts of our trees and shrubs. One of the prettiest sights that I have witnessed was that of thousands of these birds feeding on beechnuts at Buzzard's Roost in the autumn of 1902, and again in the autumn of 1906. It delighted my soul to see them feeding and hear their "jangle." The flocks seemed to be under the leadership of a single bird, and when he gave the signal the entire flock took wing and flew away to another part of the woods.

The wonder with me is that more of us do not appreciate farm life and its advantages and delights. Such a life brings one so closely in touch with Nature, and furnishes such an ample opportunity for the use of all his senses and for study. As a farmer's boy I thought I

"Knew all the birds that came
And nested in our orchard trees;
For every flower I had a name—
My friends were woodchucks, toads and bees;
I knew what thrived in yonder glen,
What plants would smooth a stone-bruised toe—
O, I was learned then,
But that was long ago."

In that "long ago" I followed the plow and the blackbirds followed me in the furrow. Both of us were doing that which was necessary to the production of a good crop of corn. I was preparing the soil for it, and the blackbirds were destroying the grubworms and cutworms, which were so destructive to the growing corn. The birds would become very gentle and manifested no fear of being harmed, and I enjoyed their companionship. "Three," their call note, was not unpleasant to my ear, and the strut of the birds as they walked over the freshly plowed ground was so lordly, and their coats so sleek and black, that I could not but admire them. One afternoon

I plowed up a nest of land terrapins and in doing so learned that the terrapin laid eggs. I saved the contents of that nest and have them in my study. If I had only continued collecting, how much valuable material I might now have and how much I might have learned that I do not now know! It is now more than fifty years since I plowed the last furrow, but I have not forgotten the good old days when I was a farmer's lad.

THE
COLUMBIAN

U.S. NATIONAL MUSEUM
WASHINGTON, D.C.



COW BIRD.
(*Molothrus ater*).
 $\frac{3}{4}$ Life-size.

COPYRIGHT 1980, BY A. W. MUMFORD, CHICAGO

CHAPTER XXVI.

June 18—June 24.

THE COWBIRD.

Order—Passeres

Suborder—Oscines

Family—Icteridæ

Genus—*Molothrus*

Species—*Molothrus ater*.

Length—7.75 to 8.25; *wing*, 4.00 to 4.60; *tail*, 2.90 to 3.35.

Migration—North, March; south, September.

The cowbird has many different names. Formerly it was called the buffalo bird because of the fact that it attended the American bison or buffalo. It has been called the brown-headed oriole because of the color of its head and resemblance to the oriole; lazy bird because it will not build a nest and care for its young; and cow bunting, cow blackbird and cow pen bird because of the fact that it attends our cattle and often is found in our barn yards with them. I have seen cowbirds on the backs of cattle, apparently catching the flies that so much annoy them, and one of the most beautiful pastoral scenes that I have witnessed was that of a large herd of cattle on a hillside meadow field attended by a large flock of these birds. The birds kept just in advance of the cattle and seemed to be feeding on the insects which were disturbed by their grazing.

The bill of the adult male cowbird is dark brown, sharp pointed and well adapted to the taking of insects, and the base of it is heavy like that of the sparrow family and well fitted to the cracking of the seeds which constitute a large portion of

its food; iris of the eye dark hazel; head, neck and breast, coffee brown; rest of its plumage glossy black with metallic bluish and greenish reflections; tail slightly forked; legs and claws glossy black, and are strong and muscular. The adult female is dull grayish brown above, a shade lighter below, and streaked with paler shades of brown.

The cowbird is a bird of North America whose range extends from Southern Mexico north through the United States and the southern parts of the Dominion of Canada, in the eastern portions to about latitude north 49 degrees; in the interior to Little Slave Lake, southern Athabasca; and west to British Columbia, eastern Washington, Oregon and southeastern California. It winters from southern Indiana and Illinois throughout its southern range. It breeds from Georgia, Louisiana and Texas, northward throughout its northern range.

The males come north in advance of the females. They are polygamous birds and thoroughly promiscuous in their polygamous habits. It is true that the male seemingly makes a show of courting, but this is rather a show of fine feathers than a desire to win the attention of a particular female; and apparently the female is perfectly indifferent as to which male she surrenders herself, and if need be, to any number of them. So, in fact, it is not an instance of true polygamy but rather of polyandry—that is, a wife having many husbands, or in other words a case of free love. This of itself makes it a most despicable bird; so despicable, that so far as I know, no man or woman has yet been inspired to write even a stanza in commendation of it.

But this is not the worst that is to be said of this bird. No illustration of the nest can accompany this chapter, for it is a nestless bird. Not only is this true, for it is a parasite and by its stealth compels other birds to rear its young. In doing this mischief it has not the courage of the English sparrow who fights for what it wants, but is a sneaking coward that secretly seeks an advantage to deposit its eggs in the nest of another bird. In this respect it is like the cuckoo of Europe but unlike any other bird in America. When the female is ready to deposit her egg, she leaves her associates and begins



Vesper sparrow's nest with cow bird egg in it

Kellogg



Indigo bunting's nest and eggs

Kellogg

the search for the nest of some other bird in which to deposit it. When this is done she returns to her associates and gives no further attention to the egg or the young that will be hatched from it. She is entirely devoid of maternal affection and love. As a rule the eggs are deposited in the nests of the smaller birds. The illustration accompanying this chapter shows the nest of a vesper sparrow with three speckled eggs of that sparrow and one large one of the cowbird. Major Bendire has listed ninety-one different kinds of birds in whose nests cowbirds' eggs were found and of these only thirteen were larger than the cowbird and at least three-fourths of them were smaller, the sparrows, vireos and warblers being the greatest sufferers. The evident reason why the cowbird selects the nests of the smaller birds is that the young of the foster parents may perish and its own survive. Remembering that the eggs of the cowbird hatches in ten to eleven days, and generally in advance of those of the foster parents, it is easy to understand why this is so.

In *The Oologist* of August, 1893, Mr. M. A. White tells of an experiment with a chipping sparrow and a cowbird's egg. "It was," he says, "on the 9th of June, 1891, that I placed a fresh egg of the cowbird in the nest of a chipping sparrow containing two of her own that had an advance of one and a half days' incubation. I watched results. About the 19th Mr. Cowbird emerged from his prison walls, large and vigorous. A day later a little sparrow came forth from his delicate shell, but much smaller, and exhibiting less strength than his foster brother. The other egg failed to hatch. The daily increase in the size of the cowbird was something immense, while the younger companion seemed to diminish rather than enlarge, until finally, at the end of three days, he died, evidently for want of food, as the cowbird, being the larger, greedily devoured everything that came in contact with his capacious mouth." Major Bendire in commenting upon this communication says: "Such seems to be the fate of nearly all the young which have the misfortune to be hatched with a cowbird for a companion. I have yet to see a nest containing young birds of both species more than a few days old; by that time the rightful offspring are smothered or crowded out of the nest

by their stronger foster brother, or they are starved, and he then absorbs the entire attention of the parents. Only in cases where the true offspring is as large or larger than the imposter is there any likelihood of exception to the rule. It can readily be seen what an immense amount of harm a cowbird causes in the economy of nature, granting that only a single one of its eggs is hatched in a season. A brood of insectivorous and useful birds is almost invariably sacrificed for every cowbird raised, and they are certainly not diminishing in numbers."

Some of the birds that are imposed upon by the cowbird, recognizing the fact, abandon their nests and build others; others add additional stories to the nest and thus cover up their own and the eggs of the cowbird. Mr. William Hamilton Gibson years ago, in one of the magazines, beautifully illustrated how this had been done by a yellow warbler, and in his account of it said, after having taken off one story, "Have we fully examined this nest? Even now the lower section seems more bulky than the normal nest should be. Can we not trace still another faint outline of a transverse division in the fabric about an inch below the one already separated? Yes; it parts easily with a little disentangling of the fibres, and another spotted egg is seen within. A three storied nest! A nest full of stories—certainly. I recently read of a specimen containing five stories, upon the top of which downy pile the little warbler sat like patience on a monument, presumably smiling at the discomfiture of the outwitted cowbird parasite, who had exhausted her powers of mischief for the season, and doubtless convinced herself of the folly of 'putting all of her eggs in one basket.'"

The cowbird is essentially a bird of the open fields but often is found in the vicinity of a stream or swamp. At Buzzard's Roost I have most frequently found them next to Fall Creek. They eat insects, grasshoppers, beetles, etc., in the summer, and take seeds of weeds and occasionally small grain to some extent, at other seasons. No doubt the cowbird does much good, and there may be some wise purpose for its existence, but if there is I have not discovered it, nor do I know of any one who has. It has no song. There is nothing in its life to make it joyous. Why should they sing?



MEADOWLARK.

CHAPTER XXVII.

June 25—July 1.

THE MEADOW LARK.

Order—Passeres

Suborder—Oscines

Family—Icteridæ

Genus—Sturnella

Species—Sturnella magna.

Length—9.50 to 11.00; wing, 4.40 to 5.00; tail, 3.16.

Migration—North, February; south, November.

“Up from the dewy grass, while yet 'tis dark—
On trembling pinions, soars the meadow lark;
His brilliant breast like ruddy orange glows;
From slender throat the liquid music flows.”

Of the true larks, family Alaudidæ, there are about one hundred species found in different parts of the world. Of these the sky lark of Europe is the best known. The horned larks are the only representatives of the family native to this country. Thus it is seen that the meadow lark is not now classed by the systematists with the lark family, but that it has been placed in the family Icteridæ, composed of the black-birds, orioles, etc. Wilson in his American Ornithology places it with the larks, and justifies himself in doing so by saying, “He differs from the greater part of his tribe in wanting the long straight hind claw, which is probably the reason why he

has been classed, by some later naturalists, with the starlings. But in the particular form of his bill, in his manners, plumage, mode and place of building his nest, nature had clearly pointed out his proper family."

As the name indicates, the meadow lark is a bird of the fields, most frequently being found in the meadows, and spends the greater part of its life on the ground, where all of its food is obtained. It is sometimes called the old field lark. In their general appearance the sexes are alike, except that the female looks a little paler. The body is thick and stout. The general aspect of the head very flat from crown to end of bill, which is one and a half inches long, of horn color, straight, somewhat heavy, and well adapted to taking food from the roots of plants. A median line of light buff or yellow extends from the base of the bill over the top of the head; crown of the head on either side of this line is dark brown and a line of the same color extends from the bill to and beyond the eye, and between them and below the eye is a cream colored streak and patch; neck and back highly variegated, each feather being blackish with a terminal reddish brown area, and sharp brownish borders. The chin and throat are yellow with a large, conspicuous black crescent on the breast; sides and lower belly light yellow streaked with black; outer tail feathers chiefly white and very conspicuous in flight; legs and feet dark brown, feet very large and well adapted to walking.

There are different species of the meadow lark. The species *sturnella magna* is found in Minnesota, Iowa, western Kansas and Indian Territory, and northern and eastern Texas and all of the country east of this line of states, also in southern portions of Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia. It breeds in all parts of this immense district. In winter months it is not generally found north of a diagonal line commencing on the Atlantic coast at about 40 degrees north and running southeasterly to 38 degrees north in Kansas. It comes into the Middle West the last part of February, with its call of "spring of the year." Usually mating does not begin until early in April. Most of them leave Indiana by the first of November. Occasionally some of

them may be found later than that, and a few of them remain throughout the winter when it is not severely cold.

Nidification usually begins during the last of April and the first of May and lasts through the greater part of June, and occasionally fresh eggs are found during the first part of July. It is possible that two broods are hatched occasionally, but as a rule only a single brood is reared in a season. Both sexes assist in the construction of the nest, which is always placed on the ground, either in a natural depression or in a little hollow scratched out by the birds, alongside a bunch of grass or weeds. The nest proper consists of a slight lining of dry, wiry grass, bits of stubble and weed stalks; the inner cup is finished with finer materials of the same kind. The nest is well concealed and difficult to find. As a rule it has a dome-like covering over it. In it the bird lays from four to six white eggs, speckled chiefly at the larger end with brown and lilac. Incubation lasts about fifteen days, and both sexes take part in it. The young are able to leave the nest in about two weeks. They are very adept in hiding at the slightest sign of danger. After they are able to provide for themselves they gather into small flocks and remain in the vicinity of the nest until the latter part of October when they gradually move southward. October 10, 1905, they were very plentiful in our meadow.

To me the migration and distribution of the birds has been a subject of much interest. They are at the right place at the right time to do the most good. The weed seed gleaners are here and everywhere when needed after the seeds have ripened. The tree bole gleaners are ready for service when the greatest quantity of larvae and eggs of the pernicious insects are stored away in the crevices and under the bark of the boles. And with the coming of spring when the eggs of these insects are hatching and the insects are in flight, the great army of insectivorous birds are moving north and devouring them, and that which is especially noticeable, is the fact that they spread over all portions of the country, and like the rain that falls, doing good work for the just and the unjust alike. This is particularly true of the meadow lark. Alike in the meadows of the east and the prairies of the west, and the savannas of the south, its clear piping lay may be heard in the

early spring, announcing the return of the season of its mating and nest building. A few of them may be found nesting and rearing their young in each meadow throughout the wide extent of their range, and it is this that makes them so valuable to us. It is entirely terrestrial in its habits, procuring almost its entire food supply from the insect life that is harmful to our meadow and prairie lands. For six months of the year ninety per cent. of its food consists of such insects and during August and September over ninety-nine per cent. Even during the winter months, when insect life is dormant, it finds enough that is hidden below the surface of the ground or secreted among the grass to furnish a very considerable portion of its diet. Grasshoppers and crickets compose over twenty-five per cent. of its food, while an equally large share is made up of beetles, among them weevils, curculio and click beetles. The latter during the larvae stage are known as wireworms, and often destroy seeds before they have germinated, and thus ruin fields of corn and other grain at the outset. Meadow larks also destroy cutworms, army worms, and great numbers of the pest known as the chinch bug. It is estimated that this bug has destroyed in the United States during the last half century grain to the value of over \$330,000,000.

In its beauty of coloring, its usefulness, the sweetness of its song, its domestic relations, and its devotion to its young the meadow lark is the very antithesis of the cowbird, treated of in the preceding chapter and whose foul progeny is frequently imposed upon it to be cared for. Indeed there are very few birds, if any, which have combined in them more good qualities than the meadow lark. In his *Wild Wood Notes*, Mr. Cheney says: "The meadow lark's song is essentially tender and plaintive. In the dewy morning and toward evening he will stand a long time upon a stump or large rock or rock-heap, singing at intervals little snatches of melody; occasionally like the oriole and the kingfisher, giving his low, rapid chattering monotones. It is a favorite pastime with him to repeat four tones many times in succession, with rests intervening, sometimes adding to them another strain; and these fragmentary strains, when connected, form an original and interesting song. Now and then there is an exquisite

subtle tremor in the notes of this singer, no more to be described than the odor of the rose."

"Minstrel of melody,
 How shall I chant of thee,
 Floating in meadows athrill with thy song?
 Fluting anear my feet,
 Plaintive and wildly sweet—
 Oh, could thy spirit to mortal belong!
 Tell me thy secret art,
 How thou dost touch the heart,
 Hinting of happiness still unpossessed;
 Say, doth thy bosom burn
 Vainly, as mine, and yearn
 Sadly for something that leaves it unblessed?"

A large, stylized illustration of a flock of birds in flight, rendered in a light, sketchy style against a light blue background. The birds are depicted in various poses, some in flight and others perched, scattered across the upper half of the page.



BALTIMORE ORIOLE.
(*Icterus galbula*).
 $\frac{1}{2}$ Life-size.

COPYRIGHT 1900 BY A. W. MUMFORD CHICAGO

CHAPTER XXVIII.

July 2—July 8.

THE BALTIMORE ORIOLE.

Order—Passeres

Family—Icteridæ

Subgenus—Yphantès

Length—7.00 to 8.15; wing, 3.50 to 3.90; tail, 2.85 to 3.35.

Migration—North, April; south, August.

Suborder—Oscines

Genus—Icterus

Species—Icterus galbula

“A flash of gold and black against the sky,
A perch upon the orchard’s topmost bough,
A strain of such unmingled ecstasy,
The lingering echoes thrill the silence now,
A hanging nest so beautifully shaped,
So softly lined, close woven, firm and strong,
A bright eyed mate to brood above the eggs,
And listen to that rhapsody of song.”

The genus *Icterus*, scientists tell us, contains nearly forty species, all more or less brightly dressed, in orange, yellow and black. None, however, is more beautiful than our Baltimore oriole. The name oriole is from the French oriol and that from the Latin aureolus, meaning a little bird of gold. The Baltimore oriole gets its name from its colors which are black and orange, being those of the arms of livery of Lord Baltimore. There is a popular tradition as to how it got the name. The story is, that when George Calvert, the first Lord Baltimore was worn out with many hardships in his Newfoundland colony, he journeyed into Virginia. There he was much im-

pressed by the hosts of birds that thronged the forest, but none of them cheered and delighted him as much as did the oriole with its gay coat and sweet song. So much pleased was he that its colors—orange and black—became the heraldic colors of the first lords of Maryland, and since then the bird has borne his name.

In its migration, the Baltimore oriole comes north during the latter part of April; I always look for it on the twenty-second day of that month. It returns south by the middle of September. Its range extends north to the southern border of the Dominion of Canada, from Nova Scotia and southern New Brunswick westward through Ontario and Manitoba to Saskatchewan, where it reaches its northern known limits in latitude 50 degrees; west to eastern Assiniboia, the eastern part of Montana, Colorado and Texas; south in winter through Mexico and Central America to Panama. The males come north first, and until the females come are very restless and keep up an almost continuous calling. The one across the street from Elmhurst seems to say, "Come to me dearie, come to me dearie," and is much delighted when she comes. By this it is believed that they mate for life. It certainly is true that they are much devoted to each other, and that when a pair of them have located, they or others of their kind, will be found in that locality for many years afterwards.

The Baltimore oriole is universally admired, both for the richness of his color and the sweetness of his song. The bill of the adult male is almost straight, strong, tapering to a sharp point, black, and sometimes lead colored above, the lower mandible light blue towards the base; iris of the eye hazel; the head, neck all around, forepart of the back, wings and part of the tail black; the greater wing coverts are margined with white; the lesser wing coverts, the posterior of the back, and the whole under parts, bright orange, deepening into vermillion on the breast; the black on the shoulders is also divided by a band of orange; tips of the two middle tail feathers and the ends of the others are of a dull orange; tail slightly forked; legs and feet light blue or of a lead color. The adult female is half an inch shorter than the male, with the head, neck and forepart of the back, mixed with dull yellow; hind part of the

back, light brownish yellow, brightest on the rump; lower parts duller than his. The bill of this oriole is well proportioned, sharp as a needle and is very useful as a weapon of defense, and well adopted to taking food and to the weaving of her nest.

"Of all the weavers that I know,
The oriole is the best;
High on the branches of the tree
She hangs her nest."

The nest is wonderfully made and when completed is one of our finest specimens of bird architecture. It is a pensive nest, that is, it is in the form of a long pouch and usually suspended from the extremities of the limbs of the tree upon which it is found. Trees with long, drooping branches, such as the elm or willow are preferred for this purpose. The materials used for the frame work of the nest consist principally of plant fibre such as that of the hemp and milkweed, and often, when located near our habitations, of horsehair, bits of twine, yarn, strips of grapevine, bark, etc. I have several of these nests, most of them, having been sent to me by my friend, Mr. Max Munte. One of them is an unfinished nest and is made entirely of horse hair. Evidently it is but the warp of the nest without the woof. Another is like it except that being a finished nest it has the woof woven into the warp and this consists entirely of plant fibres. Another has the same warp but a woof of twine and plant fibres. As I have said the nest is usually suspended to the extremities of slender branches of trees and the elm is one of their favorite trees. Across the street from Elmhurst is one of these trees, and for years a pair of orioles have suspended their nest from its drooping branches, brooded and reared their young. At Buzzard's Roost, favorite places for their nests are the outstretched limbs which overhang Fall Creek. Occasionally these birds suspend their nests in the limbs of an erect tree, preferably the maple, like that in the illustration. I have one of these in my collection which was sent to me by Dr. Carlton Evans, an Ohio friend. It is a fac-simile of that in the illustration, except that it is constructed entirely of twine and yarn. The eggs are four to six in number, and of a very pale

gray, drab or almost white color, dotted at the large end with purplish spots, and covered at the smaller end with a great number of interesting lines of the same hue. Incubation lasts about fourteen days, and the young leave the nest in about the same length of time.

"Two weeks elapsed, behold a helpless crew!
Claim all her care and affection too;
On wings of love the assiduous nurses fly,
Flowers, leaves and boughs, abundant food supply;
Glad chants their guardian as abroad he goes,
And waiving breezes rock them to repose."

The song of the Baltimore oriole is a clear mellow whistle, repeated at short intervals as he gleans among the trees. F. Schuyler Mathews in his *Wild Birds and Their Music*, says he "is a musician in the fullest sense of the word. His ability to whistle a well-constructed song is unquestionable. His only fault is his fragmentary treatment of a good theme, and chary way of singing it. He is lavish with calls and chatterings, and devotes too much time to preliminaries before he begins on the song that he is well able to round out to a finish." His "calls and chatterings" have had various interpretations. Nuttall describes one as "tshippe-tshayia-too-too-tshippe-tshippe-too-too." Major Bendire says his song is like "hioh, hioh, tweet, tweet," and another something like, "whee-he-he, whee-he-he, oh whee-he, he-woy-woy!" Mr. Butler describes one heard after the first of June as "who-ee, here-we-are," or "who-ee-who-ee-who-ee-who." Mr. Cheney in giving an account of one he heard on the 22d of May, 1884, and continuing thereafter through the season, says, "a remarkable feature is that the words, 'murly, curly, key! chickerway, chick-er-way, chick-er-way, chew' were as plainly formed as the whipporwills' name when he tells it to all the hills." And as Mathews adds, he "is not without the harsh, grating, unmusical note that belongs to his family, icteridæ, for sometimes you hear a scolding note issue from his bill that is reminiscent of the grackle."

By an exhaustive report Professor Beal has shown the great value of the Baltimore oriole as a destroyer of injurious insects. The report was based upon the examination of one

hundred and thirteen stomachs. The food for the whole season consisted of 83.4 per cent. of insect matter and 16.6 per cent. of vegetable matter. The most important item of the insect food consisted of caterpillars, which aggregated more than 34 per cent. of the whole. Beetles of various families and species ranked next to the caterpillars in abundance. Those most eaten were the click or snapping beetles. These beetles and their larvae, known as wireworms, are among the most destructive insects with which the farmer has to contend. Of them Professor Comstock says: "There is hardly a cultivated plant that they do not infest; and working as they do, beneath the surface of the ground, it is extremely difficult to destroy them. Not only do they infest a great variety of plants, but they are apt to attack them at the most susceptible period of their growth, before they have attained sufficient size and strength to withstand the attack, and often the seed is destroyed before it is germinated. Thus fields of corn or other grain are ruined at the outset." For its vegetable food the oriole prefers fruit, but also eats grain and the seeds of weeds. The report showed that six kinds of fruits were found in the stomachs, namely, cherries, raspberries, blackberries, mulberries, Juneberries and elderberries, grapes and peas, but the harm done to these is probably overestimated. The report closes with these words, "let the farmer continue to hold his good opinion of the oriole and accord it the protection it so well deserves."

1000



BOBOLINK.

COPYRIGHT 1900, BY A. W. HUMPHORD, CHICAGO

CHAPTER XXIX.

July 9—July 15.

THE BOBOLINK.

Order—Passeres

Suborder—Oscines

Family—Icteridæ

Genus—Dolichonyx

Species—Dolichonyx oryzivorous.

Length—6.30 to 7.60; wing, 3.70 to 4.00; tail, 2.60 to 2.90.

Migration—North, May; south, July.

"Bobolink, that in the meadow
Or beneath the orchard's shadow
Keepst up a constant rattle
Joyous as my children's prattle,
Welcome to the north again!
Welcome to mine eye the sight
Of the buff, the black and white!"

The bobolink, a bird of our meadows, has many other names, such as American ortolan, white-winged blackbird, skunk blackbird, Maybird, butterbird, ricebird, rice-bunting, reed-bird and meadowbird, and each of these has been suggested by some characteristic of the bird.

The bill of the adult male bobolink is short and heavy, like that of a sparrow, and of a bluish brown color; iris of eye, hazel; when he comes to us in the spring and during the period of nidification the plumage of the upper part of his head, shoulders, wings, tail and the whole of the under part of his body is black; nape and back of neck brownish yellow; back black, seamed with brownish yellow; scapulars, edges

of wings, rump and tail coverts are of a dull white; tail formed like those of the woodpecker, and often used in the same manner; legs and feet of a brownish flesh color. The female, the color of whose plumage the male assumes after the breeding season, is yellowish brown; crown and back conspicuously streaked with black, nape and rump with smaller markings; crown with central stripe, and stripe over each eye olive-buff, or olive-gray; wings and tail feathers, sharp pointed. Below, yellowish or whitish, shaded with buffy or olive; sides and lower tail-coverts, more or less streaked with black; bill, brown.

“Modest and shy as a nun is she,
Pretty and quiet, with plain brown wings,
Passing at home a patient life
Broods in the grass while her husband sings,
‘Bobolink, bobolink,
Spink, spank, spink.’ ”

In the bobolink we have another interesting study in migration. They come north in May and return south the last of August, although some of them linger until the middle of September. The males come north in flocks in advance of the females. On my way to Buzzard's Roost in May, 1902, I noticed that two medium sized wild cherry trees ahead of me were full of birds. Before I got close enough to them to identify them by sight, I was able to do so by hearing their joyous song of,

“Winkle-wankle-wonkle-winkle,
Tee-a, tee-a, tumble, tinkle,”

and knew that they were bobolinks. A jollier and happier set of birds than they were I have never seen. The northward journey from their winter home in South America begins in March and April. Of their advance in Florida, Captain William Miles Hazzard in a letter to Major Bendire says: “The bobolinks made their appearance here during the latter part of April. At that season their plumage is white and black, and they sing merrily when at rest. Their flight is always at night. In the evening there are none. In the morning their appearance is heralded by the popping of whips and the firing

of musketry by the bird minders in their efforts to keep the birds from pulling up the rice. This warfare is kept up until about the 25th of May, when they suddenly disappear at night." They then are called Maybirds.

"In the more southern part of their breeding range," says Major Bendire, "the young are generally large enough to fly by July 1. They gather then in little flocks with the parents (the male assuming the garb of the female about that time) and are soon thereafter led by them to the marshes, near the seashore, in quest of their favorite food, which at this time of the year is Indian rice." They then are called Reed birds. Captain Hazzard in his letter to Major Bendire, in describing their southern migration, says: "Their next appearance is in a dark yellow plumage, as the Ricebird. There is no song at this time, but instead a chirp which means ruin to any rice found in the milk. My plantation record will show that for the past ten years, except when prevented by stormy south or southwest winds, the Ricebirds have come punctually on the night of the 21st of August, apparently coming from seaward. All night their chirp can be heard passing over our summer homes in South Island, which is situated six miles to the east of our plantations, in full view of the ocean. Curious to say, we have never seen this flight during the day. During the nights of August 21, 22, 23 and 24, millions of the birds make their appearance and settle in the ricefields. From the 21st of August to the 25th of September our every effort is to save our crop." They are so destructive to the rice crop that it is estimated they directly or indirectly cause an annual loss of \$3,000,000.

From the rice fields they migrate to their winter homes in South America. Of this Mr. Wells W. Cooke says: "A still more direct route, but one requiring longer single flights, stretches from Florida to South America via Cuba and Jamaica. The 150 miles between Florida and Cuba are crossed by tens of thousands of birds from 60 different species. About half the species take the next flight of 90 miles to the beautiful Jamaica mountains. Here a 500 mile stretch of islandless ocean confronts them, and scarcely a third of their number leave the forest-clad hills for the unseen beyond. Chief among

•

these dauntless voyagers is the bobolink, fresh from despoiling the Carolina rice fields, waxed fat from his gormandizing, and so surcharged with energy that the 500 mile flight to South America on the way to the waving pampas of southern Brazil seems a small hardship. Indeed, many bobolinks appear to scorn the Jamaica resting point and to compass in a single flight the 700 miles from Cuba to South America. With the bobolink is an incongruous company of traveling companions—a vireo, a king bird, and a nighthawk that summer in Florida; the queer duck-will's-widow of the Gulf States; the two New England cuckoos; the trim Alice thrush from Quebec; the cosmopolitan bank swallow from frozen Labrador, and the black-poll warbler from far Alaska. But the bobolinks so far outnumber the rest of the motley crew that the passage across the Caribbean Sea from Cuba to South America may with propriety be called the 'bobolink route.' Occasionally the mellow-voiced wood thrush joins the assemblage, or a green-gold tanager which will prepare in the winter home its next summer livery of flaming scarlet. But the 'bobolink route' as a whole is not popular with other birds, and the many that traverse it are but a fraction of the thousands of North American birds that spend the winter holiday in South America."

The nest of the Bobolink is hard to find. I have never found but one of them; yet I am sure I have been in the immediate locality of several. It is built on the ground and composed of dry grass, straw and weeds and is placed in a slight depression of the ground. In it are found,

"Six white eggs on a bed of hay,
Freckled with brown a pretty sight!
Where the mother sits all day;
Robert is singing with all his might,
Nice, good wife that never goes out,
Keeping house while I frolic about."

In prose and poetry the writers have tried to describe his song, but have wholly failed to accomplish it. And this is so because his song is utterly indescribable—there is nothing like it. Mr. Washington Irving in his graphic description of the bird aptly tells how it is done. He says, "He

perches on the topmost twig of a tree, or on some long flaunting weed, and as he rises and sinks with the breeze, pours forth a succession of rich, tinkling notes, crowding one upon another like the outpouring melody of the skylark, and possessing the same rapturous character. Sometimes he pitches from the summit of a tree, begins his song as soon as he gets upon the twig, and flutters tremulously down to the earth, as if overcome with ecstasy at his own music."

And this is an epitome of one of the most interesting birds of our avi fauna, and whose annual stay with us is told by Mr. John Burroughs so beautifully in verse.

"Daisies, clover, buttercup,
Red-top, trefoil, meadow sweet,
Ecstatic wing soaring up,
Then gliding down to grassy seat.

Sunshine, laughter, mad desires,
May day, June day, lucid skies,
All reckless things that love inspires,
The gladdest bird that sings and flies.

Meadows, orchards, bending sprays,
Rushes, lillies, billowy wheat,
Song and frolic all his days,
A feathered rondeau all complete.

Pink bloom, gold bloom, fleabane white,
Dew drop, rain drop, cooling shade,
Bubbling throat and hovering flight,
And jubilant heart as e'er was made."



CHAPTER XXX.

July 16—July 22.

THE DICKSISSEL.

Order—Passeres

Suborder—Oscines

Family—Fringillidæ

Genus—Spiza

Species—*Spiza americana*

Length—5.75 to 6.80; wing, 2.80 to 3.30; tail, 2.35 to 2.90.

Migration—North, May; south, August.

"Sir Richard Cecil was a 'night of very high degree.

He came to preach some English fad in North Amerikey;

But a clever Indian medicine man transformed him to a bird,

With the funniest, drollest, driest note that ever yet was heard;

And now he sings the livelong day, from mullin or from thistle,

The first of his intended speech, "Oh, I am Dick, Dick Cissell."

The dickcissel is a member of the family Fringillidæ. Formerly it was known as the black-throated bunting. Some thirty or forty years ago it was a locally common bird in the Middle Atlantic States, but about that time it seems to have changed its range, and is now rarely found east of the Alleghenies. It made its appearance in the Middle West about the time of its disappearance east of the Alleghenies, and now, as Mr. Butler says, "is an abundant summer resident." It is also known as the meadow lark and little field lark.

The bill of the adult male dickcissel is conical, acute and of a grayish-blue color; iris of the eye hazel; forepart of the head greenish-olive; hind head, neck and cheeks dark ash-gray; narrow pale yellow stripe over the eye; back bright

chestnut, streaked with black; lesser and middle wing coverts cinnamon rufous; greater wing coverts dusky centrally, edged with pale-wood brownish; rump similar but paler, and without streaks; upper tail coverts brownish gray with dusky shaft streaks; chin white; throat black; sides gray, and abdomen white; legs and feet brown; toes long, slender and furnished with long, well curved claws. The adult female is similar to the male, except that there is less yellow on her breast; the black patch on the throat is replaced by spots or streaks and the top of the head is more brownish.

As I have already stated, the summer range of the dickcissel has changed, and now its range extends from Columbia and Trinidad north to Ontario, Michigan, Minnesota and North Dakota. Its breeding range extends from South Carolina to Ontario and from the Allegheny Mountains to the base of the Rocky Mountains. They come north about the first of May and return south during the first half of August. The males come north in flocks and in advance of the females. In the vicinity of Indianapolis they are abundant in the upland meadows. The nesting season begins in May. The nest is made on or near to the ground, of leaves, grasses, rootlets, corn husks and weed stems; the lining is of fine grass and often horse hair, and is built by the female. Mr. Baskett in his *Story of the Birds*, says, "the most casual observer may note how very fastidious they (the birds) are in choosing the proper location and material for their homes, especially the latter. * * * After a certain substance is chosen, however, the birds continue to use that from a certain definite region. Thus a dickcissel selected one year all her straws from the midst of a meadow which seemed to the observer to have the same material on its nearer edge. It may be just possible that a convenient dead weed on which her mate sat and sang while she worked had something to do with it, for he went with her to the neighborhood of the nest and sang there and then preceded her to the dead weed again." The eggs are pale blue and three to five constitute a clutch.

Mr. Ridgway, in his *Birds of Illinois*, says: "While some other birds are equally numerous, there are few that announce their presence as persistently as this species. All day long, in

spring and summer, the males, sometimes to the number of a dozen or more for each meadow of considerable extent, perch upon the summits of tall weed stalks or fence stakes, at short intervals, crying out, 'See, see—Dick, Dick, Cissel, Cissel;' therefore 'Dick Cissel' is well known to every farmer's boy as well as to all who visit the country during the season of clover blossoms and wild roses, when 'Dame Nature' is in her most joyous mood."

The dickcissel in some respects resembles the meadow lark, and hence its name little meadow lark and little field lark. It has the black patch on a yellow throat and is a bird of our clover fields. Just as the clover was in full bloom in 1906 I had occasion to pass through one of these fields just at dusk. By their chattering and flight, I observed that large numbers of some species of birds were going to roost in the clover, but could not tell what kind of birds they were. The next morning I repassed that way, and discovered that the birds were dickcissels. By the last of July almost all of them were gone. Dr. Judd says: "Most sparrows are gregarious, but dickcissels move about in pairs or little family groups. In many places they are so numerous that a score of individuals may be found in every hay field and meadow; and the species is as characteristic of such localities as the robin is of the New England lawn or the mocking bird of the Florida plantation. The song consists of a series of monotonous insect notes, repeated incessantly from morn to late afternoon, resembling somewhat the heat-suggestive tones of the grasshopper." In his examination of the food of their nesting he found that it chiefly consisted of short and long-horned grasshoppers and crickets. The adult birds live largely upon grasshoppers and other meadow insects. They have been found to be very destructive of canker-worms. About one-half of their food consists of weed and grass seeds.

I have but one grandchild, a boy now ten years old. Of course he is and always has been his grandfather's pet. He has always called me Gaga. From his infancy he has been taught to love the birds, and he knows many of them. From Somerleaze to the station is about two miles. Alongside the road is a telephone line. About half way the distance, for

many years, a dickcissel has each year from a perch on the telephone wire, persistently sung his "See, See—Dick, Dick, Cissel, Cissel." The grandchild rides to and from the station with us. When yet a little "tad" the boy discovered that dickcissel, and year after year since then he is alert to rediscover it, and when he does, in a most excited way he cries: "Gaga, Gaga, see, Dick Cissel, Dick Cissel!"—and don't you know that this makes his grandfather glad! Why? The answer is that I believe that a boy who learns to love the birds will never grow to be a bad or vicious man.

A large, stylized illustration of a flock of birds in flight, rendered in a light, sketchy style against a dark background. The birds are depicted in various poses, some in flight and others resting, creating a sense of movement and activity. The overall composition is dynamic and visually appealing.



RUBY-THROATED HUMMINGBIRD.
(*Trochilus colubris*).
About Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XXXI.

July 23—July 29.

THE RUBY-THROATED HUMMINGBIRD.

Order—Macrochires

Suborder—Trochili

Family—Trochilidæ.

Genus—Trochilus

Species—Trochilus colubris

Length—3.07 to 3.25; wing, 1.60; tail, 1.25.

Migration—North, May; south, September.

“Minutest of the feathered kind,
Possessing every charm combined,
Nature, in forming thee, designed
That thou shouldst be,
A proof within how little space
She can comprise such perfect grace
Rendering the lovely, fairy race
Beauty’s epitome.”

The ruby-throated hummingbird, the smallest of our birds, is a member of the family Trochilidæ, composed of the hummingbirds of which there are about five hundred species; and all of these are found in the Americas. Seventeen species of them are found in the United States, but the ruby-throat is the only one found in eastern North America.

The male and female are alike in size and form, but quite unlike in other respects. The male above is of a bright metallic green color, with purple wings and tail; below white and gray with a resplendent ruby-red throat or gorget, which, with the change of light, rapidly assumes all the colors of the rain-

bow; tail brownish violet and deeply forked like that of a tree swallow. The female has not the resplendent gorget, and her tail is rounded, with the feathers barred with black and the outer ones tipped with white. The bill of both the male and female are of a brownish color, very long and needle-like in shape. The legs, like those of the chimney swift are very short and the feet very small.

The range of the ruby-throat extends from as far south as Veragua in Central America, north as far as Davis Inlet, Labrador, in latitude 55 degrees 37 minutes, and west in the United States to eastern North and South Dakota, eastern Nebraska and Kansas, the Indian Territory and Texas. Its breeding range is coextensive with its North American geographical distribution. In its northern migration it reaches the southern part of the United States about the first of April, and the middle part about the first part of May. I found them at Buzzard's Roost May 7, 1904, feeding upon the blossoms of the buckeye. There is five to ten days difference in the time of the coming of the males and females. In 1906 several of them were reported in Indianapolis as late as the tenth of October.

Mating takes place directly after the birds come north. It is during this period that what is known as the pendulum play of the male takes place. In this play the bird swings to and fro, as if suspended from a fixed point; it describes one-fourth of a circle, and travels about a rod. The movement is continued about a dozen times, the bird emitting chirps all the time, and so far as I have learned this is its only call note or song. Nesting begins about the first of June. The female builds the nest. It is usually saddled upon the horizontal branch of a tree from ten to fifty feet from the ground. Mr. John Burroughs says: "The woods hold not such another gem as the nest of the hummingbird. The finding of one is an event to date from. It is the next best thing to finding an eagle's nest. I have met with but two, both by chance." And by the merest chance I found one of these "gems." It happened this way. I was leisurely walking down street to my office. As I walked I was studying the trees as I passed by them. I had just passed a sassafras, that tree which when young is so surpassingly beautiful. The next was a maple. On a limb, pro-



Nest and birds together were not so large as the rose

Kellogg

jecting over the sidewalk, I noticed what seemed to be a peculiar excrescence. I stopped and gave it a second look, and sure enough, there was the hummingbird's nest that I had long been looking for. I now have a specimen in my collection which I obtained in the summer of 1906. Some children accidentally discovered it while playing in the sand under a beech tree at Somerleaze. They heard a buzzing noise above them and looking up saw the female alighting upon her nest, which was saddled upon an outstretched limb of the tree in much the same manner as that in the first illustration. Like that, it was larger than the limb upon which it was saddled. The cup of it was just large enough for me to put the end of my thumb into it. The diminutive size of one of these nests is beautifully shown in the second illustration made from a photograph taken by Dr. Kellogg, which shows that the nest and the birds together are smaller than the rose above them.

Major Bendire's description of the building of the nest is so good that I give it in full. He says, "It is one of the most exquisite pieces of bird architecture to be found anywhere. The circular foundation is composed of bits of lichens, mixed with fine vegetable fibers, which are apparently firmly glued to the twig on which the nest is saddled, presumably with the saliva secreted by the bird for this purpose, and the structure is built upon this, the inner portions of it being composed of soft, downy plant fibers, such as the silky down of different species of willows and poplars, that are found on the young and unexpanded leaves of the oaks and various kinds of ferns, especially that from the young stalks of the common brake, the silky down of the milkweed, and similar materials from other sources. After these have been well worked together in a sort of vegetable felt, the outer walls of the nest are profusely covered with a coating of bits of lichens obtained from the trunks of limbs of trees in the vicinity, and these are firmly fastened in place with spider webs, giving the nest the appearance of a small, lichen covered knot, which for this reason is very difficult to detect. In nearly every instance the nest is placed so that its contents are protected from above by the leaves of the trees or a limb directly over it, and it is rare to find one in a perfectly open and unsheltered situation. The location of the

beautiful structure certainly shows considerable intelligence on the part of the builder. Two white eggs are laid to a set, one every other day, and these are frequently deposited before the nest is more than half completed, the female finishing it gradually after incubation has commenced, and sometimes adding additional lichens on the outside, even after the young have been hatched."

As soon as incubation commences the male appears to lose all interest in his spouse for the time being and leads an easy, careless life, and lets her attend to the incubation and feeding of the young. Incubation lasts about fourteen days. When hatched the young are blind and they do not open their eyes until they are about a week old. They are large enough to leave the nest in from sixteen to twenty-one days. The mother feeds them by regurgitation and their food consists of the nectar of various flowers and very tiny insects.

The food habits of the ruby-throat are interesting. Its food consists of minute insects and nectar, which it extracts from the deep chalices of flowers and sap which it obtains, from trees where the sapsucker has perforated them. Professor Judd of the United States Department of Agriculture says, that the adult birds feed on insects to a much greater extent than they do on nectar, and that they destroy many gnats, ants, and minute parasitic wasps; and that the young nestlings are fed on flies, beetles and spiders by the process of regurgitation, a habit that appears to be much more general among birds than formerly supposed. To enable the hummingbird to obtain its food, it is provided with an unusually long beak and a wonderfully constructed tongue. The tongue is long, thread-like, and divided into two tubes which run throughout its entire length, and is capable of being protruded to a considerable distance from the point of the tip of the beak, and can be bent in any direction. At the throat it joins a curiously forked bone which passes on either side of the neck, and around the back of the head, ending in the forehead, like that of the flicker and is illustrated in the chapter entitled "The Flicker," which see in this connection. It is this and the muscles that control it which enables the bird to protrude its tongue. With its tongue which acts like a suction pump, it has the power of

drawing nectar from the deep cupped flowers. There was a time when it was claimed that the hummingbird's food consisted only of this nectar. But the naturalist Webber, established the fact that this was not true. He caught and tamed several of these little birds. At first they were fond of syrup, but after a while they got tired of it and began to droop. He let them fly away. They soon returned, as fresh as ever. This occurred again, and when next set free Mr. Webber and his sister watched them carefully. He says: "We were sadly puzzled to think what it was they were dipping at so eagerly in the shrubbery, to the utter neglect of many flowers. We moved closer to watch them to better advantage, and in so doing changed our relative position to the sun. At once the thing was revealed to me. I caught Ruby in the very act of taking a small spider, with the point of his beak, from the center one of those circular webs of the garden spider, that so abound in the south. * * * Our presence did not disturb them in the least, and we watched them catching spiders for half an hour, * * * and we could distinctly see them take the little spider from the center of the wheel where it lies, and swallow it entire. * * * If we shut them up past the time, until they began to look drooping, and then brought one of those little spiders with other insects, they would snap up the spider soon enough, but paid no attention to the others."

At Somerleaze we have trailing over the veranda many vines of the honeysuckle. In the shade of these has been a favorite place of mine for the observation of many birds, and among them the ruby-throats, who come in large numbers to feed from the chalices of the honeysuckle flowers. To the west of our front lawn is a large bed of perennial flowers, and a good portion of it is given to the various columbines. On a great oak stump on the east lawn is a trumpet vine. The flowers of the columbine and the trumpet vine are favorites with the ruby-throat. Often have I gone and stood very quietly by these and watched it as it worked.

"Blooms at thy coming stirred,
 Bend on each brittle stem,
 Nod to the little gem,
 Bow to the hummingbird frolic and free.
 Now around the woodbine hovering,
 Now the morning-glory covering,
 Now the honeysuckle sipping,
 Now the sweet clematis tipping,
 Now the bluebell dipping;
 Hither, thither, flashing, bright'ning,
 Like a streak of emerald lightning;
 Round the box, with milk-white phlox;
 Round the fragrant four o'clocks;
 O'er the crimson quamoelit,
 Lightly dost thou wheel and flit;
 Into each tubed throat
 Dives little Ruby-throat."

Among my clippings I find an account of a locomotive engineer who had made observations on the speed of various birds and insects. Many birds, he says, make a practice of flying beside or in front of his engine, and when the weather is clear and there is no wind he opens the throttle and races with them. He estimates that the turkey buzzard flies at the rate of twenty-three miles an hour. The pigeon is one of the fastest birds in the United States. It makes a speed of forty-six miles an hour with ease. When chased by an engine it can beat the fastest express. The wild duck travels at the rate of forty miles. The blackbird, robin, dove and other small birds travel at a speed of thirty-eight miles an hour. The hummingbird can and does excel a speed of a mile a minute.

And now we have followed the ruby-throat through his sojourn with us, while as,

"A flash of harmless lightning,
 A mist of rainbow dyes,
 The burnished sunbeams brightning,
 From flower to flower he flies."

Summer has gone and autumn is here, and he is off to the sunny south. In the words of Howitt:

"Thou happy, happy hummingbird,
 No winter round thee lowers;
 Thou never saw a leafless tree,
 Nor land without sweet flowers."

"A reign of summer joyfulness
 To thee for life is given;
 Thy food the honey of the flower,
 Thy drink the dew of heaven."



NIGHTHAWK.

FROM COL. CHAS. A. DODD, SCIENCES

Copyright 1900, BY A. W. MUNFORD, CHICAGO

CHAPTER XXXII.

July 30—August 5.

THE NIGHT HAWK.

Order—Macrochires

Suborder—Caprimulgi

Family—Caprimulgidæ

Genus—Chordeiles

Species—Chordeiles virginianus

Length—10.00; wing, 7.30 to 8.25; tail, 4.30 to 4.75.

Migration—North, May; south, September.

“In the high, pale heaven he flies and calls;
Then swift, oh swift,
On sounding wing
That hums like a string,
To the quiet glades where the gnat clouds drift,
And the night moths flicker, he falls.
Then hark, the Nighthawk!”

The family Caprimulgidæ, known as the goatsucker family, is composed of the nighthawks, whip-poor-wills and chuck-will's-widows. There are about eighty-five species of the family distributed throughout the world. About one-half of these are American birds, but only seven of them are found in North America, and but three of them, namely, the chuck-will's widow *antrostomus carolinensis*, the whip-poor-will, *antrostomus vociferus*, and the nighthawk, *chordeiles virginianus*, are found in the Middle West. All of the species capture their food of insects on the wing. As a family, the goatsuckers are perhaps more crepuscular than any other birds except the owls. While this is true, it cannot be said that the nighthawk, as its

name would indicate, is a bird of the night. It is neither a hawk nor a bird of the night, but rather a bird of the late afternoon and dusk and the early dawn of morning, and of cloudy days. Its cousins, the chuck-will's-widow and the whip-poor-will are strictly nocturnal birds. At Buzzard's Roost as soon as the sun has disappeared behind the western hills, we hear the whip-poor-will,

"With his music throb and thrill
He it is that makes the night
An enchantment and delight,
Opening his entrancing tale,
Where the evening robins fail,
Ending the victorious strain
When the robins sing again."

The nighthawk is known by the other names of bull bat, and mosquito hawk. Apparently it is more than a medium sized bird, but in fact its body is very small. The night hawk and whip-poor-will look much alike and many people think they are the same. The first, however, has a white throat instead of a narrow white line on a black throat and in the day shows the white bands or stars in its crescent wings. The latter fact inspired my friend, Mrs. Jane L. Hine, who is a close student and lover of the birds, under the title "The Stars in the Night Hawk's Wings," to write the following poem:

"The night is approaching,
The sun is near setting
And night hawks, that hunger has called from their roost,
Above us are soaring
And hungrily gleaning,
From pastures that lie on the sky's azure breast."

"Now, straight upward looking
On birds that are passing,
We see a unique and most beautiful thing;
Each night hawk in sailing
Reveals that it's wearing
A pair of bright stars, one in each dusky wing."

The adult male nighthawk has a large flat head with a very small curved bill which is hooked at the tip and of a black color; mouth extremely large and without bristles; eye large and full and of a deep bluish black; neck short and body slen-

der; upper part of body greenish black and slightly mottled with streaks of pale cream color interspersed with specks of reddish; wing coverts varied with grayish, and the scapulars with yellowish rufous; primaries brown, the five outer ones marked about midway with a white spot; tail, long, broad, forked and barred with white and deep brownish black for an inch and a half from the tip, where it is crossed broadly with a band of white, the middle feathers excepted, they being of a deep brown color, barred and sprinkled with light clay; a white V shaped mark on the breast; other under parts with transverse bars of white, blackish and pale tawny; plumage soft and blended; legs, short, feathered a little below the knees, and, as well as the toes, of a purplish color, seamed with white; the middle claw is pectinated on its inner edge, to, as Wilson says, serve as a comb to clear the bodies of vermin. In flight the white markings of the bird are very conspicuous. In appearance the female is like the male, except that she has not the white patch on the tail, and that of the throat is mixed with reddish.

The nighthawk is a migrant, that comes north in May and returns south in September and October. Its range extends through Eastern North America, north in the Dominion of Canada to 59 degrees north latitude; thence in a northwesterly direction to Mackenzie River Valley to 65 degrees north latitude; west in the United States to the eastern border of the Great Plains and sporadically along the southern boundary of the Dominion of Canada and the northern districts to southern British Columbia, Washington, Oregon and northern California; and thence south in winter to the Bahama Islands, Central America, and the greater part of South America. Mr. Cooke in his bulletin says: "Of the land birds, the common eastern nighthawk seems to deserve first place among those whose winter homes are widely distant from their breeding grounds. Alaska and Patagonia, separated by 115 degrees of latitude, are the extremes of the summer and winter homes of the bird; and each spring many a nighthawk travels the 5,000 miles that lie between."

It breeds throughout its northern range. In the more southern part of it, usually it nests in the first half of May but

in the northern part not until in June. It makes no nest, but, as is shown in the illustration, deposits its two eggs on the bare ground, and within recent years they also nest more and more frequently on the flat, gravel-covered roofs of houses in our large cities. Those that build on the ground always pick out a dry and well drained spot in which to lay their eggs, and if discovered on the nest, the bird attempts by all the well-known tactics of ground-breeding birds to draw the intruder away from the spot, fluttering in front of him, just out of reach, and uttering at times low cries of distress. Occasionally the eggs or young are removed quite a little distance by the parent. The eggs, only two of which are laid, are white, cream, olive-buff or olive gray, marked with black, gray and lavender. The eggs are laid on alternate days. Incubation begins when the first one is laid, and both parents take part in it. It lasts about sixteen days. The young, covered when hatched with dark-spotted down, are not easily found, nor are they easily discovered on becoming full fledged, for their plumage almost resembles that of the adults, being a blended mixture of greenish-brown, gray, and black. They soon attain their full size and power of flight, and then take to the same manner of life as their parents.

The flight of the nighthawk is both wonderful and beautiful. In many respects these birds resemble the swallows and swifts. This is especially true of the shape of their heads, bodies, wings and feet, the only apparent difference being that of size. All of them are fully equipped to do their specific work—that of taking their food out of the upper air while in flight—and for this work they are wonderfully equipped.

In describing the flight of the nighthawk, Major Bendire aptly says: "One moment it may be seen soaring through space without any movement of its pinions, and again the swift flight is accompanied by a good deal of rapid flapping of the wings, like that of our falcons, and then is constantly more or less varied by numerous twistings and turnings. While suddenly darting here and there in pursuit of its prey I have seen one of these birds shoot almost perpendicularly upward with the swiftness of an arrow in pursuit of some insect. Its tail appears to assist it greatly in these movements." Usually they

are seen in pairs at such times, but occasionally there are numbers of them assembled together. It is then a most interesting sight to watch them, while engaged in feeding, skimming close to the ground or over the waters of some pond or lake, gliding swiftly along in all kinds of serpentine gyrations with the utmost grace and ease and no matter how limited or numerous the number of them may be, no one of them will ever get in the way of the other. To me that part of the flight of the night-hawk is most interesting which takes place just in advance of an approaching storm. From my office window I have often watched them with amazement. Then as Major Bendire says it soars and it flaps, it twists and it turns, it mounts perpendicularly into the air until it seems to be up in the clouds—when in an instant it shoots down with lightning rapidity almost to the earth, and then, by a single reverse movement of the wings, turns abruptly and ascends to resume its flight or repeat the same performance. As the bird thus drops suddenly through the air it makes a whirring sound that Nuttall likens to the “rapid turning of a spinning wheel, or a strong blowing into the bung-hole of an empty hogshead.” Others describe it as a “booming.” There has been much conjecturing as to how this noise is made. It is now pretty generally conceded that it is made by the air passing through the bird’s stiffened wing-quills. It has but one note, and that is like the “scaip” of the woodcock.

When not in flight the nighthawk sits very still and it is difficult to find owing to its protective coloration and the position which it assumes. While it can perch like other birds, it does not do so. On the contrary, if it is in a tree or on a log it sits lengthwise with the limb or log, on which it is and presents much the appearance of a knot or broken limb. Those in the city rest on the roofs of the buildings and in doing so sit very flat and close to the roof and are almost imperceptible. From the lunch room, which is on the eighth story of the building in which we have our offices, I have frequently while taking my lunch seen one thus sitting on the roof of another building.

As to its anatomy and food Prof. F. E. L. Beal says: “The body of the nighthawk is much smaller than one would sup-

pose from seeing the bird on the wing. The long wings and the loose, fluffy feathers, tend to give an exaggerated appearance of size that is not real. The body is actually so small, and with so little flesh on the loose skeleton, that it is about the last bird one would suppose any one would kill for food. The pectoral muscles which move the long wings constitute the principal and only part where there is much flesh. The legs are small and weak and do not appear to have much use, so that the muscles which move them are reduced to a minimum. In one point, however, the nighthawk's anatomy is fully developed; its stomach is huge for so small a bird. In capacity it fully equals, if it does not exceed, that of the common pigeon, whose body is at least twice as large. It is right here that the nighthawk's usefulness appears. This enormous stomach must be kept filled to supply motive power for the long wings which are kept in motion so many hours. To facilitate this work Nature has given the bird an immense mouth, which is really more like the mouth of a turtle or a frog than of a bird. The food consists of insects taken on the wing, and so greedy is the bird that when food is plenty it fills its great stomach almost to bursting. To ascertain the character of the food taken, nearly one hundred stomachs were examined, with interesting results. Eighty-seven of these were estimated to contain not less than 20,000 ants alone, and this was not half of the insect food."

In September the nighthawks commence going south. At this time they gather into large flocks and seem to be in training for their journey. Up and down Fall Creek at Buzzard's Roost, I have seen hundreds of them thus getting ready, and it was a beautiful sight.

1870, 1871
California



YELLOW-BILLED CUCKOO.

CHAPTER XXXIII.

August 6—August 12.

THE YELLOW-BILLED CUCKOO.

Order—Coccyges

Suborder—Cuculi

Family—Cuculidæ

Subfamily—Coccyginæ

Genus—Coccyzus

Species—Coccyzus americanus

Length—11.90 to 12.70; wing, 5.40 to 5.80; tail, 6.00 to 6.15.

Migration—North, May; south, October.

"Delightful visitant! with thee
I hail the time of flowers,
And hear the sound of music sweet
From birds among the bowers.

"Sweet bird! thy bower is ever green,
Thy sky is ever clear;
Thou hast no sorrow in thy song,
No winter in thy year."

The family Cuculidæ, composed of the cuckoos has in it about one hundred and seventy-five species. Of these about thirty-five are found in the Americas. In the Middle West we have but two, the yellow-billed and black-billed cuckoos. These resemble each other very much. They may be distinguished by the color of their bills and tails. The lower mandible of the first is yellow and of the other black; the tail feathers of the first is conspicuously tipped with white, which extends down the outer vane of the outer feather; of the other the tail feathers are narrowly tipped with white. They are rather solitary

birds inhabiting wooded areas. They are possessed of peculiar vocal powers, and their strange calls are frequently the origin of their popular names. For instance, in some parts the yellow-billed cuckoo is called the cow-bird from its call "kove, kove, kove," and the rain crow because often its call is most frequently made just before the approach of a rain storm.

The bill is that which gives the yellow-billed cuckoo its distinguishing name. It is long, arched, and curved downward at the tip like a shoemaker's awl. The upper mandible is black and the lower yellow except at the tip, which is also black. Iris of the eye hazel, feathered close to the eyelid, which is yellow below. The general color of the upper parts, with the wing coverts and two middle tail feathers is a light greenish brown. The wings are not so long as the tail, are of a brownish color, with the inner vanes of a bright reddish cinnamon. The tail is quite long, held in a somewhat oblique position, and excepting the two middle feathers, is black, with a broad white space at the end of the three outermost feathers, and the fourth white on the outer web. The whole lower parts of the body are pure white. The feathers covering the thighs are large like those of the hawk tribe. The legs and feet are light blue. The feet of the cuckoos have been the source of much study and conjecture among the ornithologists, in this, that they have four toes in two pairs, one pair being in front and the other in the rear. This is the manner of the construction of the feet of the woodpecker family, and with them the reason for such construction is easily accounted for, since it enables them to hold fast to the boles of the trees. This reason can not be applied to the cuckoo, since it does not ascend or descend the boles of trees. The general appearance of this cuckoo is very much like that of the mourning dove. In appearance the sexes are alike except that the female is the largest.

The yellow-billed cuckoo is a migrant. In the chapter on the bobolink we have seen that it is one of the birds which takes the "Bobolink route" in its migrations. Its range extends from Costa Rica north to about latitude 45 degrees 30 minutes. In the United States, through southern Maine, Michigan, Wisconsin, southern Minnesota, and South Dakota; west to Nebraska, Kansas, the Indian Territory, and Texas; south



Young cuckoos

Kellogg



Cuckoo's nest and eggs

Kellogg

to Florida, the Gulf coast, and the West India Islands. It arrives in the Northern States about the commencement of May, and remains there until the end of September or the first of October. Its breeding range is coextensive with its geographical distribution throughout the United States and the southern portions of the Dominion of Canada. Nidification begins shortly after their arrival in the north, ranging from the middle of May to the middle of June. As will be seen by the illustrations, the nest is a shabby affair—much like that of the Mourning Dove. It is a mere platform of twigs, and built in a bush or tree from five to twenty feet from the ground. Two observed at Somerleaze were so flimsy in construction that it seemed impossible for them to hold eggs, and standing under them I could see through them. Occasionally, nests are found that are fairly large and well lined with dry grass, ferns and leaves; but as a rule, they are shallow and rough in appearance. The eggs are greenish blue, and a complement of them consists of two to five, and rarely six or seven. Incubation commences as soon as the first egg is laid, and accordingly we have the strange anomaly of eggs and birdlings occupying the same nest. In rare instances it has been found that the cuckoo deposits its eggs in the nests of other birds, as the Cuckoos of Europe do. The three facts, namely, the skeleton-nest, manner of incubation, and occasionally depositing of eggs in nests of other birds, are adduced by some ornithologists as evidence of the fact that an evolution is taking place in our cuckoo, and that it is losing the pernicious habit of its European cousin and taking on the habit of providing a nest for itself and caring for its young.

I have witnessed the motherly care and distress of one of these birds. One Sunday afternoon at Somerleaze, about the middle of July, 1901, I discovered, by a call of the bird that she had built her nest in a cedar tree, standing twelve feet from the corner of the veranda. This surprised me, for the cuckoos are regarded as shy birds; and I had not known that the female ever made calls from the nest. During the remainder of her brooding she often uttered the calls. While brooding, the bird kept a close eye upon every movement of ours—and such beautiful eyes she did have! Subsequently I discovered there

was a young cuckoo in the nest. The mother bird was feeding it a very large grasshopper. It was interesting to notice how she did it. She alighted near the side of the nest, and for awhile sat very still and kept constantly eyeing the young one. She seemed to be crushing the forepart of the grasshopper, preparatory to giving it to the little one head foremost. In feeding it her beak went far into its mouth as though she was assisting it to swallow the grasshopper. The process was a slow one. Five mornings afterward, I noticed the little one was on a lower limb of the tree. No doubt it had fallen out of the shabby nest. The mother bird saw me and warned her baby much as a hen does her chickens when danger is near. It was amusing to see the little one stand up erect, and remain stock still. When I came home that night the little one was gone. Another bird tragedy! No doubt a cat had caught it. The distress of the mother bird was great. I shall never forget the incident. She went over the cedar, from its topmost to its lowest branches. She flew from limb to limb, and in the most pathetic way called for her baby. Then she would sit and eye and scan every branch of the tree. When she had gone over the cedar, she flew to the near-by trees and examined them. Near midnight I heard her calling for her lost one; and when I came home the next evening she was still searching for it.

The cuckoo is an insectivorous bird, and one of the best friends of the farmer and the orchardist. Many of them know it as the rain crow, because of the fact that its guttural call is most frequently heard in moist, cloudy weather. Many of our worst insect pests, in passing through the caterpillar state, are covered with spines as completely as the porcupine. For this reason many of the insectivorous birds will not feed upon them. And just here is where the value of the cuckoo comes in, for it is its delight to attack these, eviscerate them and then devour them. Prof. Forbush says: "The caterpillar habit of the cuckoo is so well known that to see several cuckoos together is taken as a sign of the caterpillars' presence, and their stomachs sometimes become lined and fettered with the hairs of the caterpillars, of which they eat many destructive kinds."

As Major Bendire says, the cuckoo "is decidedly aboreal in its habits, and is rarely seen on the ground, where on ac-

count of its short and weak feet, its movements are rather awkward; but on the wing it is exceedingly graceful; its flight is noiseless and swift and it moves or rather glides through the densest foliage with the greatest ease, now flying sidewise, and again twisting and doubling at right angles through the thickest shrubbery almost as easily as if passing through unobstructed space, its long tail assisting it very materially in all its complicated movements." In many respects the European cuckoo is like ours. Of it Wordsworth, Nature's bard of England, wrote:

"O blithe newcomer! I have heard,
I hear thee and rejoice.
A Cuckoo! shall I call thee bird?
Or but a wandering voice?

While I am lying on the grass,
Thy loud note smites my ear!
From hill to hill it seems to pass,
At once far off and near!

Thrice welcome, darling of the Spring!
Even thou art to me
No bird, but an invisible thing,
A voice, a mystery."

Our cuckoo is not gifted with song. It simply has calls, and these are described as "cook-cook, cook, cook, "cow-cow-cow-cow," and "ke-ock, ke-ock, ke-ock, ke-ock." But, like its foreign relative, it may be properly called "A voice, a mystery," for no bird with which I am acquainted is so mysterious and strange in its habits. You hear its call and know it is about, but find it if you can! It is in the midst of the foliage of some tree, sitting so still you can not see it. Presently it will leave the tree with the velocity of an arrow and fly directly into the foliage of another tree. And so, from tree to tree it will go hunting for its relished food, never alighting on the outside or on top of the tree.

The top diagram shows a sparse distribution of 100 dots on a 10x10 grid. The dots are scattered across the grid, with a higher concentration in the center and corners.

The bottom diagram shows a denser distribution of 100 dots on a 10x10 grid. The dots are clustered in the center and corners, with fewer dots in the middle of the edges.



SUMMER YELLOW BIRD.

(*Dendroica aestiva*.)

‡ Life-size.

COPYRIGHT 1900, BY A. W. HUMFORD, CHICAGO

CHAPTER XXXIV.

August 13—August 19.

THE YELLOW WARBLER.

Order—Passerēs

Suborder—Oscines

Family—Mniotiltidæ

Genus—Dendroica

Species—Dendroica æstiva.

Length—4.50 to 5.25; wing, 2.35 to 2.65; tail, 1.80 to 2.10.

Migration—North, April; south, August.

“While May bedecks the naked trees
With tassels and embroideries,
And many blue-hued violets beam
Along the edges of the stream,
I hear a voice that seems to say,
Now near at hand, now far away,
‘Witchery—witchery—witchery.’”

The family Mniotiltidæ is composed of the wood warblers, found only in America, and consists of about one hundred species. About seventy of them visit the United States. They are migrants, and in the distances they travel in migration and in the size of the areas they occupy during the breeding season, present an enormous range of variation. “They capture their insect food” says Chapman, “in a variety of ways. Some species flit actively from branch to branch, taking their prey from the more exposed parts of the twigs and leaves; others are gleaners and carefully explore the under surfaces of leaves or crevices in the bark, while several, like the flycatch-

ers, capture a large part of their food on the wing. As a rule, they are arboreal, but many are thicket haunting, and some are terrestrial."

The yellow warbler is known as the wild canary, summer yellowbird, golden warbler, summer warbler, and yellow poll. As its name indicates its general color is yellow. The bill of the adult male is of a light blue or horn color, long, as compared with the size of the bird and terminates in a very sharp point; iris of eye of an orange yellow; top and sides of head, clear yellow; back, a clear yellowish olive-green; wings and tail dusky yellow; middle and greater wing coverts broadly tipped with yellow; primaries and tail feathers, dusky, edged with yellow; tail slightly forked; entire lower parts yellow with reddish stripes; legs and feet light brown. Adult female paler yellow, usually without streaks, but sometimes with a few indistinct ones on the chest.

The range of the yellow warbler extends from Guiana and Ecuador north to the Bering Sea and the Arctic coast. Of its breeding range Mr. Cooke says: "If a map of the United States and Canada south of the Barren Grounds was colored to represent the breeding area of the yellow warbler, the uncolored portions would comprise Florida, southern Georgia, and numerous small 'islands' representing the upper parts of the eastern mountains and such parts of the western mountains as are above 6,000 to 8,000 feet. The summer range of the bird, including the range of the subspecies *sonorana* in the southwestern part of the United States and that of *rubiginosa* in Alaska, covers approximately 40 degrees of latitude, that is to say 30 degrees to 70 degrees and 110 of longitude, that is to say, 55 degrees to 165 degrees. The winter range covers 31 degrees of latitude, that is to say 24 degrees north to 7 degrees south and 54 degrees of longitude, that is to say, 52 degrees to 106 degrees. The two in combination thus give an extension of 77 degrees of latitude and 113 degrees of longitude." He adds: "The extreme points of the yellow warbler's range—northern Alaska and western Peru—are farther separated than the extremes of the range of the black-poll warbler, which is considered the greatest migrant of the family. Owing, however to the southerly extension of the breeding range of the

former, it is likely that the longest migration trips of black-polls exceed those made by any yellow warblers."

The yellow warbler is a very sprightly, unsuspicious and familiar little bird; is often seen in our towns and cities as well as in the country, in and about our gardens, among the blossoms of fruit trees and shrubberies; and on account of its color, is very noticeable.

"Have you walked beneath the blossoms in the spring?

In the spring?

Beneath the apple blossoms in the spring?"

It is then in the early May that the yellow warbler will be found building her nest. Usually it is built in a tree in the orchard or in a bush and is a remarkable specimen of bird architecture. It is cup-shaped and generally built in the triangular fork of a small shrub and of very neatly woven plant-fibres, fine strips of bark, fine grasses and plant down. Its inner lining is made with plant down, soft feathers and often woven together with horse-hair. The one pictured in the illustration is not a good specimen. In the dainty nest is laid four or five bluish white eggs, spotted and blotched with different shades of brown. Often it raises two families in a season. It is frequently imposed upon by the cowbird which drops one or more eggs into its nest. It seems to have learned from experience that the strange eggs are dangerous, and not infrequently constructs a false bottom over them, even though in doing so it encloses some of its own eggs, and builds the wall of the nest high enough to give the proper depth to the cup-shaped cavity. If a cowbird continues its imposition and lays its eggs in the second story a third story may be added, and even four storied nests have been reported.

Most of the warblers tarry with us only long enough to procure the necessary food for their journey and even this short stay with us makes of them a very beneficial class of birds, for they come at the very time that the insects which are most injurious are depositing their eggs in the leaf buds and upon the new leaves of our trees, and they destroy immense numbers of these. The Yellow Warblers, however, remain with us in large numbers in our cities, towns and about our

homes in the country throughout the summer. They are very active and sprightly birds, and well fitted for their work of taking the eggs and larvae of pernicious insects from the buds and leaves of our trees. Their adaptation to this use is very noticeable in their elegantly formed, sharp bill. With it they are capable of taking the smallest insect egg, and in doing this they are of the very busiest of our insectivorous birds. They not only destroy quantities of the smaller insects and their larvae and eggs but also destroy many beetles. Prof. King examined the stomachs of four birds taken between September 6 and 22 and found that all of their food, excepting a single ant, consisted of beetles. One stomach contained ten of them.

The song of this warbler is a very pleasing, simple "wee-cher-wee, wee-cher-wee," often repeated. Mr. Vandyke interprets it "witchery, witchery, witchery." Mr. Butler says "its note seemed to run like 'a-wit, a-wit, a-wit, a-wit, a-wit' each pair of syllables repeated five times with moderate rapidity and in the same tone, with no inflection. Mr. Chapman says, "its song—'wee-chee, chee, chee, chee-wee,' though simple has a pleasing happy ring," and Mr. Marble says, "Sweet-sweet-sweet, sweet, sweet-sweeter-sweeter' is his frequent contribution to the volume of nature." This is a fair illustration of how variously different people interpret the song of a bird. Indeed, as Mr. Stoddard says,

"How songs are made
Is a mystery,
Which studied for years
Still baffles me."

In the chapter on the Blue Jay I said they could communicate with each other intelligently, and quoted from Mr. Munte's letter in which he told about two jays flying away from a fruitless attack on a screech owl and bringing back nine others with which to renew the attack. Not only is this true of the Blue Jays but of other species. In times of danger the various species seem to understand each other, and will respond to a danger call and come to the rescue of the bird or birds that are in danger of being harmed. While tramping in the thicket at Somerleaze one afternoon I found a young

brown thrasher upon the ground, and I thought I could do him a service by placing him upon a limb. When I tried to do so it gave a "squawk" and instantly the parent birds came, and they gave an alarm to which it seemed to me all the birds of the vicinity responded—and such a show of fight as they did make! On another occasion I had been tramping down Fall Creek and when I got to Buzzard's Roost I was very tired. I lay down on the grass under a hornbeam to rest and in doing so must have come very near to the nest and young of a yellow warbler, although I was not able to find it. Immediately a pair of them gave the alarm and instantly the bushes about me were full of all kinds of birds—some of which I had never seen before. In my collection of clippings, I find one, by whom written, I know not, which well says, "Every species of bird has a peculiarity of voice possessed by no other. By this variety of vocal endowment, birds are not only distinguished above the rest of the animal creation, but are able to express to one another their wants and passions. There can be no doubt that this power of communication exists not only between the sexes but between all individuals of the same species. The least experienced observer of nature knows that the approach of danger is expressed by a universally intelligible cry; which, if uttered by the wren, for instance is understood by the turkey cock and vice versa. Of whatever species the one may be which first perceives the approach of a bird of prey, it is able to excite the attention of all birds in the neighborhood by its peculiar cry of warning."

TO THE
AMERICAN



PURPLE MARTIN.
Life-size.

FROM COL. CHI. ACAD. SCIENCES.

331

CHAPTER XXXV.

August 20—August 26.

THE PURPLE MARTIN.

Order—Passeres

Suborder—Oscines

Family—Hirundinidæ

Genus—Progne

Species—Progne subis.

Length—7.25 to 8.50; wing, 5.65 to 6.20; tail, 3.00 to 3.40.

Migration—North, April; south, August.

"'Twit twit, twit twit' the martins come again,
Underneath my eaves, about my window-pane;
They bring me all the spring in their low strain,
 'Twit twit, twit twit!'

Blythe birds of mystery, God-taught, give o'er
Your tireless flight, and teach me half your lore.
Now black against the sapphire sky they soar,
Now flash with white athwart the April rain,
Returning ever with the low refrain,

‘Twit twit, twit twit!’ ”

The family Hirundinidae, composed of the swallows, has in it about eighty species. Of these we have six species in the Middle West, namely, the purple martin, cliff swallow, barn swallow, tree swallow, bank swallow, and the rough-winged swallow. The swallows are distinguished by their small bills, long, powerful wings and small weak feet. They live almost exclusively on insects which they capture while in flight. Their flight is strong, skimming, darting and exceedingly graceful. When not in flight they choose conspicuous perches like tele-

graph wires, gutters and the eaves of barns and other out-buildings.

The purple martin is the largest of the swallow family. The bill of the adult male is brownish black, larger than that of the other swallows, with a wide gape and is arched and somewhat curved at the tip; eye full and dark. His general color is of glossy steel blue with purple and violet reflections. Wings are about six inches long and when closed are rather longer than the tail. The tail is considerably forked and edged with purple blue. The tarsi and toes are naked, and he can walk on the ground better than the other swallows. The adult female differs from the male in that she is not quite so large; her upper parts are blackish brown, with blue and violet reflections thinly scattered; chin and breast grayish brown; sides under the wings darker; belly and vent whitish, not pure, with stains of dusky and yellow ochre; wings and tail blackish brown.

The flight of the blue martin is graceful, easy and swift. It is a migrant who comes north the latter part of March. I always look for them on the 23d of that month and almost invariably they come. My lookout for them has been from the lunch room on the eighth floor of the building in which our offices are located. A colony of these birds have nested in the building just opposite, in the very center of the city. For several years, while at lunch, I have been watching them. In 1904 they did not come until after the middle of April—no doubt because of the very cold and backward spring of that year. Their range extends north from the Argentine Republic and Bolivia through the eastern part of the United States to Manitoba, Ontario and Newfoundland. They winter south from Mexico and they breed throughout their entire range. With those that come north, mating and nest building commences soon after their arrival. One theory of migration is that the birds come north to have their young. The fact that the blue martin breeds throughout its entire range would seem to prove that this theory is not well founded.

Formerly these birds built their nests in cavities and hollows of trees, but in this regard their habits have changed. They now prefer to nest in gourds and boxes put up for them

about our homes. Many of them will build close together if the martin house or box is built with compartments to accommodate them. They are gregarious in their habits. Their nests are made of leaves, twigs, grasses, feathers and other soft material. In their nesting habits they are quite unlike the house martin of Europe, which is sometimes called the "Martlet." That martin attaches its nest to the buildings, much like our barn swallows do, but with much more difficulty. Often it takes them more than a week to lay the foundation for their nests. In doing this they cling to the wall while they deposit the mud of which the nest is built. When finished the nest takes the shape of a half hemisphere and is lined with feathers and bits of straw. That Shakespeare is the greatest of all the dramatists is universally conceded; that he was a well versed naturalist must be admitted. His observations were accurate and must have been extensive. His descriptions of objects of nature are always accurate and felicitous. For instance, in his reference to the "Martlet" in Act I, Scene 6 of Macbeth, he says:

"This quest of summer,
The temple-haunting martlet, does approve,
By his loved mansionry, that the heaven's breath
Smells wooingly. No jutting, frieze,
Buttress, nor coigne of vantage, but this bird
Hath made his pendant bed, and procreant cradle.
Where they most breed and haunt, I have observed
The air is delicate."

Returning to our purple martin, we note that it lays four to five white eggs. The males assist in incubation, which lasts from twelve to fifteen days. The young leave the nest in eighteen to twenty-one days. Generally two broods are reared in a season.

The purple martins have always been regarded as useful birds. The Mohegan Indians said that it was "the bird that never rests." They had a special liking for it, and often fastened a gourd to their tent poles to invite its friendship. Audubon tells us that in his traveling among the Indians he found that they hung up calabashes for the martins, so they would keep the vultures from the deerskins and venison they were

drying. The negroes of the south have but little consideration for the birds, but they are the friends of the purple martin, and from poles near their cabins one will see gourds suspended for them. Mr. Bradford Torrey while traveling in the south noticed this, and curious to know what they were for, asked an old negro why they were put up. He answered: "Why, dey is martins' boxes. No dangah of hawks carrying off de chickens so long as de martins am around." And this gives prominence to an interesting fact, and that is these birds are useful in protecting our domestic fowls from the hawks, crows and blue jays. They are great fighters and will not allow any of these birds to come about where they have their nesting places.

The food of the purple martin is entirely insectivorous, consisting mainly of wasps, bees, beetles and other insects found in flight, for they capture their food as they fly. There are those who say that "wasps, beetles and all manner of injurious insects constitute its diet," and that they ought to be protected for the purpose of exterminating the mosquito. They seem to forget that the martin destroys many beneficial insects. Professor King tells us that five which he examined had eaten 14 bees, 8 tiger beetles, 2 butterflies, 9 breeze flies, 6 dragon flies and 3 molusks. Some of these are very beneficial to man. Perhaps no bird or other creature destroys more mosquitos than the dragon fly, and of all our insects the bee is the most useful.

It is worth while, however, to protect these birds and put up boxes for them about our homes, for they do more good than harm and their notes are pleasing and their flight is interesting. Their cheery songs are heard until about the 20th of August. Then they assemble in large flocks and by their cackling and twittering seem to be discussing their departure to the south. After leaving they return in a day or two before making their final departure. Do they get homesick after they have gone some distance, and return once more to look upon the familiar scenes? One can easily imagine how "dear to their hearts are the scenes of their childhood," and of their nest building and brood rearing. This is another of the mysteries of bird life.



BARN SWALLOW.

CHAPTER XXXVI.

August 27—September 3.

THE BARN SWALLOW.

Order—Passeres

Suborder—Oscines

Family—Hirundinidæ

Genus—Chelidon

Species—Chelidon erythrogaster.

Length—5.75 to 7.75; wing, 4.60 to 4.90; tail, 3.70 to 4.10.

Migration—North, April; south, August.

“Hurrah, the swallow, the swallow is come,
Bringing the spring from his southern home.
The beautiful hours, the beautiful year!
Hurrah, the swallow is back from his flight,
With his back of jet and his breast of white,
The summer's earliest harbinger!”

The barn swallow is a full cousin of the blue martin and the handsomest member of the family. The bill of the adult male is short, very weak, broad at the base and suddenly compressed at the tip; gape very wide; iris of eye, dark hazel; color above of a steel blue, with concealed white in the middle of the back, chin and breast; wings long, narrow, acute and strong, thus enabling it to fly almost constantly with an easy skimming motion; tail deeply and evenly forked with the two outer feathers nearly double the length of the others, and it is used to great advantage as a rudder in directing its flight; underneath the plumage is a bright chestnut brown and brilliant buff that glistens in the sunlight; spots of white on the inner web of all the tail feathers, except the inner pair; legs

short, unfeathered and weak; feet very small and weak and of very little use to the bird, except when perching. The adult female differs from the male in having the belly and vent rufous white, instead of light chestnut, and the exterior tail feathers are shorter.

The usual flight of this swallow is sixty miles an hour, but it is said that it can fly at a speed of two miles a minute, or one hundred and twenty miles an hour. It is a migrant, whose range extends from Brazil north to Greenland and Alaska, and east and west from the Atlantic to the Pacific Ocean. It breeds from Mexico north throughout its northern range, and winters in the tropics of both of the Americas.

It is said that they mate for life, and when mated that they return year after year to the same place to build their nests. Soon after their return to the north they commence the work of nest building.

"The swallow is a mason,
And underneath the eaves
He builds a nest and plasters it
With mud and hay and leaves."

Their bracket-like nest is fastened beneath the eaves or to the sides of the rafters of a barn or other out-building or under the arch of an old bridge, and is made in the form of an inverted cone, with a slice cut off one side. At the top it has a kind of shelf, on which the birds sit occasionally, as is shown in the illustration. The shell of the nest is made of pellets of mud mixed with hay, as plasterers mix hair with mortar to make it less brittle; the mud is about an inch thick and placed, as is seen in the illustration, in regular layers. The inside of the nest is filled with fine hay and leaves, well stuffed in, and covered with a handful of downy feathers, which usually overhang the nest. In this nest are laid from four to six white eggs marked with dots and blotches of reddish brown and purple. Incubation lasts about thirteen days. Both birds assist in this and occupy the nest at night until the young are hatched. Two broods are reared in a season, the first in May and the second in July. The young are distinguished from the old by the absence of

the elongated tail feathers, these alone being the mark of the maturity of the birds.

These swallows have always been recognized by the farmers as their friends, and in the construction of their barns they usually provide openings for them to go in and out. Some of the farmers have a supersition that ill luck will come to a person who kills them and that a building which they take possession of will not be struck by lightning. Whether this be true or not, their sprightly warble makes even the rudest barn cheerful and homelike, and because of the good service they render to the farmer in destroying the flies and gnats which worry the horses and cattle they deserve his protection. They feed almost exclusively upon these and other harmful insects, which they take from the air while in flight. Nothing, perhaps, adds more to the beauty of our landscapes than the twittering and flight of these birds when they are taking their food. The quickness of their flight and the graceful curves made by them as they wheel to and fro through "the sky blue" is pleasing and interesting in the highest degree. Near by where I leave the interurban cars to drive to Somerleaze is one of the old-fashioned barns close by the river side. This is a favorite place for these birds. Many a half hour have I sat and watched them, while I waited for the cars or wagon. They love to fly up and down the river, and often they dip into and skim over the surface of the water for quite a distance. I have always enjoyed these birds.

Longfellow's *Evangeline* has been one of the dearest poems to me in my life, for the sad sweet story it tells, for its beautiful language and for its many beautiful descriptive passages of the woods and all nature. In it the poet refers to the swallows and the strange legend concerning them. In the happy childhood of Gabriel and Evangeline,

"Oft in the barn they climbed to the populous nests on the rafters,
Seeking with eager eyes the wonderful stone which the swallow
Brings from the shore of the sea to restore sight to the fledglings.
Lucky was he who found that stone of the swallows."

I am glad that I have lived during the last three score years and ten—the most momentous evolutionary years of

the world's history. I have witnessed the evolution of the cutting of wheat with the sickle and threshing it out with a flail to cutting it with a McCormick harvester and threshing it out with a Cyclone thresher. When I was a boy we harvested it with the sickle and cradle and tramped out the grain with our horses. In our neighborhood there was but one barn and it was a very large one with a threshing floor. To it my father hauled his wheat and threshed it. We opened the sheaves of wheat and laid them on the barn floor in a circle with the heads inward. Then we unhitched our horses, led them in on the wheat, and brother and I rode them around and around over the wheat until the grain was separated from the straw. This I have done for days at a time, and it got to be very tiresome and monotonous. About the only things to divert our attention were the nests of the wasps and barn swallows overhead against the rafters of the barn. These I watched with wonder and increasing interest. I knew nothing about the legend of "that wonderful stone which the swallow brings from the shore of the sea," but I did wish that I could get up there, so high, and learn how the swallows fastened their nests to the rafters. There must have been more than a hundred of the nests in that barn. The twittering of the swallows constantly reminded us of their presence. In addition to the twittering song, their call note is a "soft and affectionate twitt, twitt, and the cry given in time of danger a harsh trrrr, trrrr."

There is a beautiful legend of the swallow which Leland puts in verse:

"When Jesus hung upon the cross
The birds, 'tis said, bewailed the loss
Of Him who first to mortals taught,
Guiding with love the life of all,
And heeding e'en the sparrow's fall.
But as old Sweedish legends say,
Of all the birds upon that day,
The swallows felt the deepest grief,
And longed to give the Lord relief,
And chirped when any near would come,
'Hugswalaa swala, swal homon!'
Meaning as they who tell it deem,
'Oh cool, oh cool, and comfort Him!'"

Hence comes the word "swallow," meaning the bird of consolation.

They leave through the month of August, being rarely found in September. Preparatory to their journey southward they gather in great flocks. Their manœuvering seems to indicate that the old ones are training the young ones for their long journey. Miss Merriam says that in making these journeys, "sometimes they can be followed from farm to farm. They go so slowly and stop so often on the way that the young birds get used to following the old ones. Then they make prolonged stops at definite roosts, sometimes in trees and sometimes in marshes along the rivers." I have read an account of one of these marsh roosts in Arkansas, where it was estimated that more than a million of these birds congregate at night. Mrs. Bates in *The Auk*, vol. XXII, in giving an account of one of them, says that in the evening when they begin pouring in, at intervals clouds of them would evolve something like order out of their numbers and perform en masse fantastic curves, spirals, counter-marches, snake-like twists and turns, with the sky for a background. It is always with regret that we witness their departure, and with Edmund Clarence Stedman, we may say:

"Whither away, swallow,
Whither away?
Canst thou no longer tarry in the north,
Here where our roof so well hath screened thy nest?
Not one short day?
Wilt thou—as if thou human wert—go forth
And wander far from them who love thee best?
Whither away?"

100 of
1000000



From col. Eugene Bliss.

CHIMNEY SWIFT.
(*Chaetura pelagica*.)
2-3 Life-Size.

Copyrighted 1900, by
A. W. Mumford, Chicago.

CHAPTER XXXVII.

September 4—September 10.

THE CHIMNEY SWIFT.

Order—Macrochires

Suborder—Cypseli

Family—Micropodidæ

Subfamily—Chæturinæ

Genus—Chætura

Species—Chætura pelagica.

Length—5.25 to 5.40; wing, 5.00 to 5.25; tail, 1.90 to 2.15.

Migration—North, April; south, September.

“The swift is wheeling and gleaming,
The brook is brown in its bed,
Rain from the cloud is streaming,
And the bow bends overhead.
The charm of the winter is broken!
The last of the spell is said.”

The family Micropodidæ is composed of the swifts. Of these there are about seventy-five species distributed throughout the world. About one-half of them are American birds, but only four of them are found in North America. They have great powers of flight, are insectivorous birds and take their food while in flight.

“How seldom on earth do we see her alight!
She dwells in the skies, she is ever above.
It is on the wing that she takes her repose,
Suspended and poised in the regions of air;
'Tis not in our fields that her sustenance grows;
It is winged like herself,—'tis ethereal fare!”

The chimney swift, frequently called the chimney swallow, was formerly placed as a member of the swallow family.

but laterly has been placed in a family composed of the swifts, and next to the family of hummingbirds on account of certain anatomical peculiarities, and particularly because of the absence of the singing muscles in the lower larynx. The male and female are alike in appearance. They resemble the swallows in general form and habits. The bill is more suddenly curved, unprovided with bristles at the base, and is brown; eye black, surrounded by a bare blackish skin or orbit; color above a sooty brown with a greenish tinge, a little paler on the rump; wing, black, extremely long, curved, and when closed extends an inch and a half beyond the tail; tail, black, very short, rounded, and each feather ends in a spine like that of the woodpecker; underparts paler with the chin and throat grayish; tarsi short and weak, and are more or less feathered; toes black, short and thick as in no other bird, and all four of them may be extended forward; claws curved and strong.

The swift is a migrant who comes north in April and returns south in October. Major Bendire says that its range extends through "Eastern North America; north in the southern portions of the Dominion of Canada to about latitude 50 degrees; in the interior, in Northwestern Manitoba, to about latitude 52.30 degrees, and probably still farther; west in the United States to eastern North and South Dakota, eastern Nebraska and Kansas, the Indian Territory and Texas; south in winter to Jalapa, Vera Cruz, Cozumel and Yucatan, Mexico and probably still farther." Note that he says "probably." This is significant. Thereby hangs a mystery, and who will solve it? Gilbert White, the great English naturalist, was interested in it. In his poem entitled *The Naturalist's Summer Evening Walk*, he writes:

"To mark the swift in rapid, giddy ring,
Dash round the steeple, unsubdued of wing;
Amusive birds! Say, where is your hid retreat,
When the frost rages and the tempest beats?
Whence your return by nice instinct led,
When spring, soft season, lifts her bloomy head?
Such baffled searches mock men's prying pride,
The God of Nature is your secret guide."

And that same question of migration still mocks "man's prying pride," and now, as then, it is true that the "God of Nature is their secret guide."

The early naturalists, including Linnaeus and Kalm, believed that the swallows, including the swifts, buried themselves in water under the freezing line, or slept in the crevices of rocks, but modern naturalists, with authentic accounts of their having settled upon the masts and sails of ships when on their passage to and from countries where they pass the winter, disbelieve that theory. Still, the mystery is not cleared up. Mr. Wells W. Cooke in his bulletin on the migration of birds says: "The chimney swift is one of the most abundant and best known birds of the eastern part of the United States. With troops of fledglings, catching their winged prey as they go, and lodging by night in some tall chimney, the flocks drift slowly south, joining with other bands until on the northern coast of the Gulf of Mexico they become an innumerable host. Then they disappear. Did they drop into the water and hibernate in the mud, as was believed of old, their obliteration could not have been more complete. In the last week in March a joyful twittering far overhead announces their return to the Gulf coast, but the intervening five months is still the swift's secret."

The chimney swift gets its distinctive name from its habit of nesting and roosting in chimneys. Formerly they nested and roosted in hollow trees. Of their roosting Audubon's account of a rendezvous in a hollow sycamore which was tenanted by about 8,000 or 9,000 of them is interesting. He says: "The sun was going down behind the Silver Hills; the evening was beautiful; thousands of swallows were flying closely above me, and three or four at a time were pitching into the hole, like bees hurrying into their hive. I remained, my head leaning to the tree, listening to the roaring noise made within by the birds as they settled and arranged themselves, until it was quite dark, when I left the place, although I was convinced that many more had to enter. Next morning I was early enough to reach the place long before the least appearance of daylight, and placed my head against the tree. All was silent within. I remained in that posture probably twenty minutes,

when suddenly I thought the great tree was giving way and coming down upon me. Instinctively I sprung from it; but when I looked up to it again, what was my astonishment to see it standing as firm as ever. The swallows were now pouring out in a black, continuous stream. I ran back to my post, and listened in amazement to the noise within, which I could compare to nothing else than the sound of a large wheel revolving under a powerful stream."

The nest of the chimney swift generally is attached to the inside of a chimney, as is aptly shown in the illustration. An average nest is about three inches in outer diameter by two inches in depth. It is semi-circular and half-saucer shaped, and built up entirely of small dry twigs, averaging from one-tenth to one-sixteenth of an inch in diameter and from one to two and a half inches in length. There is no inner lining of any kind used, the eggs lying on the bare twigs. The twigs are gathered by the bird while in flight, the bird breaking them off with its beak while flying past. The twigs are fastened to each other and to the wall with a gummy secretion from the mouth. In chimneys the nests are ordinarily glued to the sides, from five to twelve feet below the top. Only a small quantity of the glue is secreted daily, and because of this the completion of the entire structure requires about eighteen days, if the weather is favorable, and if unfavorable much longer. The bird has the power of controlling the laying of eggs, and can discontinue it for one or more days if she thinks necessary. The eggs are white and four to five make a set.

Incubation begins before the last egg is laid and lasts eighteen days, and both birds take part in it. During the first week the blind and almost naked young are placed so that their heads come together in the center of the nest with the anal regions near to its rim. The arrangement is important for the cleanliness of the home, since the parents do not seem to trouble themselves with removing the excrement. The second week, when the young are fast outgrowing the little home, a different arrangement is necessary; the heads then lie flat against the shaft with the anterior part of the body covering and protecting the base of the nest and the posterior part protruding over its rim. At the beginning of the third week the

young swifts leave the nest, and cling to the wall with their feet, side by side, below the nest, with their heads upwards and tails downward, the latter of which they use as a support. The fourth week is spent entirely inside the chimney, hanging against its sides and not higher up than the nest. When they leave the chimney for the first time, it is heralded all over the neighborhood, and the event becomes the occasion for great activity and noise and numbers of the birds will be seen chasing each other through the air. After that the old birds feed the young in flight.

At Somerleaze my son built for himself and his wife, at one corner of the lawn, what he calls a "shack" with an old-time fireplace and chimney to it. This, to their great annoyance, and yet to our great delight, brings the chimney swifts to us annually. I have said to their annoyance. This is so because they make the chimney filthy with their excrement, and the much noise they make in feeding, both day and night, for it is true that they do feed their young at night. And I have said to our delight, and this is so because of the fact that there is not a much more interesting and delightful scene than that of these birds scurrying to and fro, and wheeling in and out in midair, and all the while keeping up their pleasant twitterings. A cloudy, damp day is their delight for this rollicking. They have little to do with the earth's plants and trees, since they never alight except in a hollow tree or chimney. They are birds of constant flight, and have wonderful powers of endurance. They are the fastest birds on wing that we have. It is said that they have been known to attain a speed of two hundred miles an hour and to have covered a thousand miles in twenty-four hours.

When they have found a nesting place they become much attached to it, and will return to it for many years. In the October number for 1901 of *American Ornithology*, Dr. H. L. Wood tells of a swift's nest which was in his father's hay loft. He says: "I remember my father's telling me that this nest had been there to his knowledge for fourteen years. * * * I used often to catch the birds as they clung to the side of the loft and show my playmates the spikes in their tails. That was during the season of '80. The following spring,

acting upon the advice of my father, I made two bracelets of coiled hair wire, and catching the birds, fastened one about the leg of each. For the following five years the same pair of swifts occupied the nest. * * * The summer of '90 I climbed into the old loft, and found to all appearances the same old nest, and upon catching the old birds, found that one still had the copper wire upon its leg. * * * Two interesting facts were demonstrated: First that the swift at least remains mated for life, and, second, that they are a long lived bird. * * * The nest to my knowledge has been there over thirty years."

John James Audubon, the famous American ornithologist, who wrote so interestingly about the swift, was born May 4, 1780, on a plantation in Louisiana. From his earliest childhood to the time of his death, a passion possessed him to make long journeys on foot through the unbroken forests, from the everglades of Florida to the coasts of Labrador, for the purpose of studying the denizens of the forest, and especially the birds. From the Great Lakes of the North to the wildest solitudes of the Western prairies, there were few accessible spots which escaped his restless wanderings. In 1833 he established himself in a beautiful residence, Minnie's land, on the banks of the Hudson, near the city of New York, and he died there January 27, 1851, the place now being called Audubon Park, he then being near seventy years old, and was buried in Trinity cemetery, near by his residence. "He was taken ill and sank to rest," says one who was present, "as a child sinks to refreshing sleep."

A beautiful story related by an eye witness is this: "As I stood near Trinity cemetery the other evening, watching the gathering hosts of birds circling against the pale light of the sky, I noticed a white-haired old man leaning against a tree and gazing upward. From north and south, east and west, flocks of the graceful birds were arriving every moment to join the swirling multitudes. There were literally thousands of them swooping in a wide circle over the silent graveyard and filling the air with plaintive cries. Suddenly the old man said, 'What a beautiful sight that is. I have watched these flights for years. During the summer the birds come every

evening about six o'clock, and for an hour or more fly in a swift circle overhead seeking rest.' 'Why have they chosen this spot?' I asked. 'It has been their haunt for many years,' said the old man. 'I like to think it is because their friend sleeps yonder. Can you see that monument? That is in memory of Audubon. On one side of that cross are the sculptured forms of many birds. Just a block away is the old mansion where Audubon lived. Every evening in summer the chimney swifts wing their swift way from New Jersey, from Westchester and from Long Island, and swing in that strange circle over the tomb of the naturalist and within sight of the place where he lived and worked. It seems as though it were a ceremony before a shrine.' Overhead the birds still swirled in a swift circle and the darkening graveyard lay silent but for the soft rustling of the leaves. Suddenly one of the swifts widened the circle and a hundred swung out after him. The twittering cries grew fainter and stopped. The first detachment circled toward the chimney of the church of St. Catharine of Genoa and dropped into it one by one. They had not all disappeared when another company swept out of the circle and disappeared. Rapidly the host grew less until finally the last of the birds had darted over and fluttered into the chimney. The old man walked slowly away. All was darkness beyond the iron gates, and silence."

One evening in the autumn of 1900, as I walked home in Delaware Street, I heard a great twittering of birds just as I approached that beautiful edifice, the Jewish Synagogue. I stopped to ascertain what it all meant and discovered that there were hundreds of chimney swifts, flying in a great circle around the tall chimney of the synagogue. I watched them until they had disappeared into the great chimney for the night's rest. The manner of their going into the chimney was much the same as that of those that "circled toward the chimney of the Church of St. Catharine of Genoa." The sight was a most beautiful one—one that I shall never forget.

1888
1889



SCARLET TANAGER

CHAPTER XXXVIII.

September 11—September 17.

THE SCARLET TANAGER.

Order—Passeres

Suborder—Oscines

Family—Tanagridæ

Genus—Piranga

Species—Piranga erythromelas

Length—6.50 to 7.50; wing, 3.55 to 3.90; tail, 2.80 to 3.25.

Migration—North, April; south, September.

"A flame, a wandering fire,
With wavering desire
From bough to bough.
Thou winged, wondrous thing!
Of glad, of golden spring
The soul art thou,
A flame, a wandering fire."

The family Tanagridæ, composed of the tanagers, has in it about three hundred and fifty species, all of whom are American birds. Only thirty-five of them are found in the United States. Of these the summer and scarlet tanagers are found in the Middle West. The family as a whole are noted for the brilliancy of their plumage. They are forest loving birds and feed on the flowers, fruits and insects found there. As a rule they are not musical, but the scarlet tanager is an exception to the rule.

The scarlet tanager is known by the other names of black-winged redbird, firebird, pocket-bird, and Canada tanager. The bill of the adult male is heavy at the base, arches and termi-

nates in a sharp point, and is grayish blue basally and dull green terminally; iris of the eye is of a cream colored brown; general color of the plumage in the breeding season is of a bright carmine; the wings are pointed and black, and it is from these it gets its name of pocket bird because of their having the appearance of side pockets; the tail is notched and black; the legs and feet are a pale lavender gray or a lilaceous grayish blue. The toes are long and armed with strong claws. When the breeding season is over, the bright carmine color is superseded above by a yellowish olive-green, and below by yellow, shaded with olive-green laterally. The black wings and tail are retained. The color of the adult female above is an olive green, below greenish yellow, with wings and tail dark, highly margined with olive. Both the male and female are beautiful birds.

The scarlet tanager is a migrant whose range extends from Bolivia, Peru and the West Indies north through the Eastern United States and the more Southern British Provinces to New Brunswick, Nova Scotia, Northern Ontario, and Manitoba. It comes north about the first of May, and returns southward by the middle of September. The males come north a few days in advance of the females. Its breeding range extends north from Virginia, Kentucky and Southern Illinois throughout its northern geographical range. Mating follows the arrival of the female, and nesting commences about the middle of May. The nest is a thin flimsy affair composed of fine roots, tendrils, small sticks and straws, and usually is built from ten to twenty-five feet from the ground on a horizontal limb. In the summer of 1904 one of them was built in such a position in an elm tree standing about twenty feet from our residence at Somerleaze, so that we could see it and the birds building it from our dining room. Both birds assist in constructing the nest. The eggs, three to five of which make a set, are a greenish blue; finely spotted with rufous-brown. Incubation is attended to by the female, but during it the male is attentive to her, bringing her food, and singing for her benefit from the top of some tree in the vicinity of the nest.

The parent birds are very devoted to their young. Alexander Wilson, the great American ornithologist, tells of catch-

ing a young tanager and carrying it a half mile to the home of his friend Mr. William Bartram, and putting it in a cage. He says, "as it refused to be fed by me, I was about to return it back to the place where I had found it, when, toward the afternoon, a scarlet tanager, no doubt its own parent, was seen fluttering round the cage, endeavoring to get in. Finding this impracticable, he flew off, and soon returned with food in his bill, and continued to feed it until sunset. * * * In the morning, almost as soon as day broke, he was again seen most actively engaged in the same affectionate manner * * * On the third or fourth day, he appeared extremely solicitous for the liberation of his charge, using every expression of distressful anxiety, and every call and invitation that Nature had put in his power, for him to come out. This was too much for the feelings of my venerable friend; he procured a ladder, and, mounting to the spot where the bird was suspended, opened the cage, took out the prisoner, and returned him to liberty and to his parent, who, with notes of great exultation, accompanied his flight to the woods."

In the olive-green color of the female scarlet tanager, we have a fine instance of protective coloration. Her nest is always built amidst the foliage of trees with like colors, and this fact helps to protect it and its contents from the ravages of its enemies. If hers was the color of the male she would be constantly attacked by these, and quickly her kind would become extinct. The male seems to appreciate the fact and except when carrying food to her, he remains away from the immediate locality of the nest.

"Athwart the shadows of the woods,
Flashes a meteor's light,
With wings like scarlet poppy-leaves,
A tanager gleams bright."

He finds a tall tree in the neighborhood of the nest, if he can, and from its topmost branch sings his sweet song of comfort for the ears of his mate.

That song of comfort is a most bewitching one, and his brilliant coat most readily enables one to find the singer. Indeed if one desires to find the birds readily,

he must have his ears as well trained as his eyes. I shall not forget my chase after a scarlet tanager and how he eluded me. It was at Somerleaze. I was resting myself on the veranda, when, for the first time I heard his song. It was new to me. I took my glasses and went after it. When I got to the tree from which I had heard it, the bird had flown. Presently I heard him from another tree, and again he eluded me. This he did many times. Finally, however, I got sight of him, and one can hardly understand how delighted I was that so delicious a song should come from such a beautiful bird. The song is much like that of the robin, and the singer continues to sing it through August. The call note of the bird is "chip-churr" and he says it as plainly as I can do it.

At Buzzard's Roost, during the summer season, we have quite a number of these birds. A favorite place for them is among the trees on the north side of the hill where the beautiful hepaticas grow. Quite occasionally they come to the yard of the cottage to get food. Their food consists principally of those kinds of insects that frequent and do injury to our forest trees. Prof. F. H. King examined 29 specimens, and found their principal food was as follows: 26 caterpillars, 47 beetles, 11 spiders, 7 grasshoppers. They also had eaten ants, ichneumon flies, 6 diptera, 6 hemipterous insects and 1 dragon fly. Curculios, elators, and leaf-chafers formed a part of the beetles eaten. And this is the creditable story of this

"Magic bird, but rarely seen,
Phoenix in our forest green,
Plumed with fire and quick as flame—
Phoenix! else thou hast no name."





ROSE-BREASTED GROSBEEK.
(*Habia ludoviciana*.)
 $\frac{1}{2}$ Life-size.

COPYRIGHT 1900 BY A. W. MUMFORD CHICAGO

CHAPTER XXXIX.

September 18—September 24.

THE ROSE-BREASTED GROSBEAK.

Order—Passeres

Suborder—Oscines

Family—Fringillidæ

Genus—Habia

Species—*Zamelodia ludoviciana*.

Length—7.00 to 8.50; wing, 3.90 to 4.15; tail, 3.25 to 3.55.

Migration—North, May; south, September.

Mr. Robert Ridgeway, in his *Birds of North and Middle America*, describes twenty-nine grosbeaks. Of these, five have been identified in the Middle West, namely the blue, cardinal, evening, pine and rose-breasted. All of these are members of the family Fringillidæ. The bill of the adult male rose-breasted grosbeak is slightly arched, light brown at the base, with upper mandible dusky and lower a yellowish white; iris of eye brown; head, neck, back and scapulars black; rump white; wings pointed, black with large patch of white on basal portion of primaries and white spots at tips of the greater coverts; tail symmetrical, nearly even, with upper coverts black with large terminal spots, and underneath part very white; chest, median portion of breast and under wing coverts bright rose red or light carmine; rest of underparts of body white; legs and feet grayish horn color, the toes being long, slender and terminated with long, sharp claws. The adult female above is of a grayish brown color, streaked with cream buff and blackish; buff stripe through the center of the crown, and a whitish one over the eye; wing coverts tipped with white; un-

derparts buffy, streaked with brownish; under wing coverts orange or saffron yellow.

The rose-breasted grosbeak is a migrant whose coming to the north occurs early in May and who returns south from the middle of September to the middle of October. Its range extends north from western Ecuador and the province of Santa Marta in Columbia to Labrador and Saskatchewan and from the Atlantic to the west of the Great Plains. It breeds from the higher points in the Carolinas throughout its northern range. Nest building begins about the middle of May. The female does most of the work in building the nest, which is built low in briar bushes, or in a shrub or tree at the edge of the woods or field. As will be seen by the illustration, it is shallow and loosely built of small twigs and the tendrils of vines. In it are laid three to five greenish-blue eggs, thickly spotted with small irregular brownish and lilac markings. Mr. A. R. Dugmore in his most excellent book, *Bird Homes*, says: "It is not a difficult nest to find, as the male bird, whose brilliant color makes him so conspicuous, is generally to be discovered near by, and when the nest is threatened by an intruder he becomes greatly excited, uttering oft-repeated sharp, piercing notes, and occasionally breaking into that beautiful soft song so peculiar to the grosbeak. When he is seen to act in that manner there is sure to be a nest not far away, and a little patient searching will discover its whereabouts." This is an exceedingly good record for the bird. All observers join in giving him credit for his devotion to his home, his mate and their young. He assists in the duties of incubation and in providing food for the nestlings. They leave the nest in about twelve days, and are fed by their parents for a considerable time after they have left it.

The rose-breasted grosbeak is not a very common bird in the vicinity of Indianapolis. I have found only one pair of them at Buzzard's Roost, and they were found in the strip of timber next to Fall Creek. At Somerleaze I find them every year in a swampy tract of land that adjoins our thicket. I occasionally see them as we are going to and from the railroad station. It was there that I was first delighted with their song. The male was in an elm by the roadside and so perched

that his rose-breast showed to the best advantage. Not only was he a beautiful bird, but his song was most delicious—so much so that I stopped and listened to it for several minutes. I shall let Miss Blanchan describe his song and how he renders it. She says: "Vibrating his wings after the manner of the mocking bird, he pours forth a marvelously sweet, clear, mellow song (with something of the quality of the oriole's, robin's and thrush's notes), making the day on which you first hear it memorable. This is one of the birds that sing at night. A soft, sweet, rolling warble, heard when the moon is at its full on a midsummer night, is more than likely to come from the rose-breasted grosbeak." And this inspired my friend, Miss Mamie L. Bass, to write:

"Across the stillness of the night
As witching as the soft moon's light,

A clear, sweet, rolling note I heard
Pour forth from happy heart of bird;

A wooer clad in colors bright,
His coat of red, and black and white;

A pleading prayer of love he sings,
A wealth of tenderness he brings.

His modest, little mate so shy,
Who watches wistfully close by.

Warm mother love throbs in her breast
As yearningly she guards her nest.

He sings of woods, blue skies and hills,
With strange delight her soul he thrills.

Sweet singer of the woodland bowers,
God make thy joy of living ours!"

In Plant World, Elizabeth G. Britton says: "It has been found that when the Colorado Beetle or potato bug started on its progress eastward it met with but little resistance until it reached the State of Iowa. Here, so the story is told, a farmer noticed that after anointing his potato vines with Paris Green a number of rose-breasted grosbeaks lay dead on the ground in the morning. He watched the birds and found that they were bolting the objectionable insects with avidity.

The grosbeak was the pioneer, but as the years have gone by other eastern birds have conquered their distrust of the new food and relished it." In Farmers' Bulletin No. 54, U. S. Department of Agriculture, Professor F. E. L. Beal tells of one potato field that was badly infested by these destructive insects. "The grosbeaks," he says, "visited the field every day and finally brought their fledged young. The young birds stood in a row on the topmost rail of the fence, and were fed with the beetles which their parents gathered. When a careful inspection was made a few days after, not a beetle, old or young, could be found; the birds had swept them from the field and saved the potatoes." In his report to the Michigan Horticultural Society in 1881, Professor Forbes says they eat canker worms, which, in some he examined, formed sixty-six per cent. of their food; also army worms and other caterpillars, wood-boring, leaf chafing and snout beetles and hymenoptera. They are accused of destroying the opening buds upon our trees when they first come to us, but if this be true, the good record they make throughout the summer in destroying injurious pests greatly exceeds the damage they do, and we do well if we protect them.



INDIGO BUNTING.
(*Passerina cyanea*).
About Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XL.

September 25—October 1.

THE INDIGO BUNTING.

Order—Passeres

Suborder—Oscines

Family—Fringillidæ

Genus—Passerina

Species—*Passerina cyanea*

Length—4.75 to 5.75; wing, 2.60 to 2.80; tail, 2.20 to 2.50.

Migration—North, April; south, September.

“When I see
High on the tip-top twig of a tree,
Something blue by the breezes stirred,
But so far up that the blue is blurred,
So far up that no green leaf flies
’Twixt its blue and the blue of the skies,
Then I know ere a note be heard,
That ’tis naught but the indigo bird.”

Bunting, formerly was the name given to several birds of the order passeres, tribe conirostres, family fringillidæ, and sub-family emberizinæ. They were characterized by an acute conical bill, with a straight or nearly straight culmen, and with lateral margins; the interior of the upper mandible with a palatic knob; the wings moderate and somewhat pointed; tarsi about as long as the middle toe, and scaled; hind toe robust and longer than the inner; claws generally curved. Our indigo bunting, known scientifically as *emberiza cyanea*, was one of the birds by Pennant placed under that arrangement, but under its present classification it is known scientifically as *passerina syanea*. It yet continues to be a member of the

family fringillidæ. Wilson called it the indigo bird, and it is quite commonly known by that name.

The bill of the adult male indigo bunting above is black and below whitish, with a dark stripe along the gonys; iris of the eye brown; head, neck and throat ultramarine blue; as his name indicates, his general color is an indigo or cerulian blue, changing to a bluish green in certain lights; he is the bluest of our blue birds; wings black blue, edged with light blue and becoming brownish toward the tips; tail deep blue, tinged with light green; tarsus slender, without feathers, and brownish; toes of same color, long, with sharp claws. The female is smaller than the male, and of an olive-brown color above, sometimes tinged with greenish gray on the rump and upper tail coverts; beneath dull whitish, more or less washed or tinged with olive-buff on the chest. Sides and flank, wings and tail darkest, sometimes with slight tinge of blue in outer webs and on the shoulders.

The indigo bunting is a migrant whose range extends from Veragua north through eastern Mexico, Central America and the United States, east of the Great Plains to Maine, Michigan, Minnesota, Ontario and Nova Scotia. It comes north during the last half of April and the first half of May, spends the summer with us, and returns to the South the latter part of August and in September. As a rule the males precede the females in the migration north. They breed throughout their United States range.

Mating begins soon after the arrival of the females and nest building commences about the middle of May. The nest usually is built near the ground, in a low bush or clump of weeds. A pair of these birds nested for several years at Somerleaze. One year I found the nest in some low growing lilac bushes and the next year in a clump of weeds nearby where it was the first year. The nest is built of grass, bark and leaves and lined with fine grass and hair, and is a very neat structure. It is made by the female, who also attends to the duties of incubation and the feeding of the young while in the nest. In the nest are laid from three to five white eggs, tinged with blue and occasionally slightly marked with reddish-brown dots. Incubation lasts about two weeks and the young leave the

nest in from ten to twelve days. In other words, nidification lasts about one month. During this time the male may be found in the immediate neighborhood of the nest singing to his mate—and that is all he does. Some men do less.

The indigo bunting is one of our most delightful and persistent singers. He is in song when he comes to us in April, and,

"At noon on many August days
Its strain its solace yields."

In her *Tangled Stars*, Ethelwin Whetherald tells us most beautifully of his song and how he sings it.

"When I hear
A song like a bird laugh, blithe and clear
As though of some airy jest he had heard
The last and most delightful word,
A laugh as fresh in August haze
As it was in the full-voiced April days,
Then I know that my heart is stirred
By the laugh-like song of the indigo bird.
Joy in the branch and joy in the sky,
And naught between but the breezes high;
And naught so glad on the breezes heard
As the gay note of the indigo bird."

A favorite place for the one at Somerleaze to sing is from the very topmost twig of a great Seckle pear tree which stands upon the edge of the front lawn, and where I can see him with my glass from the veranda. "Oh so sweet, swee, swee, swee swee, sweet," is his song, and from a hickory tree which stands in the meadow to the east comes back in response, "swee, swee, swee, swee, sweet."

The great abundance of these birds is readily determined by their singing. When one of them concludes to sing, and this is frequently, he is apt to commence on the lower branch of some tree or on a fence stake, and as he sings, gradually ascend until he has reached the topmost twig of a tree, and it is then that he seems to put all of his energy into his song. The higher the better it is for the bird that sings. It was just such a song that inspired Mr. Burroughs to write:

"But most I prize past summer's prime,
When other's throats have ceased to chime,
The faithful tree top strain;
No brilliant bursts our ears enthrall—
A prelude with a 'dying fall'
That soothes the summer pain."

Miss Blanchan is right when she says: "Borders of woods, roadside thickets, and even garden shrubbery with open pasture lots for foraging grounds near by, are favorite haunts of these birds, and that they return again and again to the same favorite spot." At Somerleaze we have one of these "roadside thickets"—one that we commenced many years ago so that we might have the wild flowers and birds. It contains about fifteen acres and now is a very wild place. We have not been disappointed, for it is a veritable home for the wild flowers and birds. On the north side of it is a public highway and along it the indigo birds are found year after year. I will not be disappointed in finding them there in the years to come, nor will my grandchildren, when I have done looking for and expecting the return of the birds.

It will be well with us if we protect these birds, for they are most useful because of the fact that their food consists of small weed seeds and insects. Of nineteen examined by Professor King, he found that two had eaten caterpillars; one, two beetles; one, a grasshopper; one, raspberries; one, elderberries; and eighteen of them had eaten the seeds of various weeds. Professor Forbes found that seventy-eight per cent. of the food of some he examined was canker worms. He also notes that they had eaten caterpillars, spring beetles, vine chafers and snout beetles.



GOLDFINCH.
(*Spinus tristis*.)
 $\frac{3}{4}$ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLI.

October 2—October 8.

THE AMERICAN GOLDFINCH.

Order—Passeres

Suborder—Oscines

Family—Fringillidæ

Genus—*Spinus*

Species—*Spinus tristis*.

Length—4.45 to 5.40; wing, 2.60 to 2.90; tail, 1.80 to 2.10.

Resident.

"The goldfinch on a thistle head
Stood scattering seedlets as he fed."

Finch, a name formerly given to many birds of the order passeres, tribe conirostres and family fringillidæ included a numerous series of small and generally brilliant birds, with short, thick, more or less conical bill, without emargination at the tip. The European and American goldfinches are representative members of the finch family as thus classified. The European species is much larger than the American and its colors are very different. It has black and golden instead of black wings, and in other respects the bird is curiously marked. It has been introduced into various localities in the New England States.

As its name indicates, the American goldfinch is a bird of America; and this is not all, for it is a bird of North America, and not a migrant. Its range extends throughout the United States and the more southern British provinces, east of the Rocky Mountains, north to Manitoba, Ontario, Quebec and

southern Labrador. It is also known as the wild canary, yellow bird, salad bird, lettuce bird and thistle bird. A singular fact is that these birds, although they are here throughout the year, and the male has on his courting suit by the first of May, yet, as a rule, they do not mate until about the first of July. Until then they may be seen flying about in small flocks and having a real good time.

The male and female are quite unlike in appearance. The bill of the adult male is moderate and of a reddish cinnamon color, tipped with black; iris of the eye brown; forepart and crown of the head and lobes are black; wings black, except the lesser coverts, which, with a band across the greater ones and the ends of the tertiaries and secondaries, are white; the coverts and inner margin of the tail white, with the remainder of the tail feathers black; general summer plumage above and below a pure lemon or canary yellow; legs of a reddish cinnamon color. In the winter his color is similar to that of the female, except his wings are of a deeper black color, with whitish markings more conspicuous. The adult female above is a yellowish-gray; under parts dull grayish-white, more or less tinged with yellow; no black in the forehead; wings and tail much like that of the male. She looks quite like a member of the sparrow family.

The best time for insectivorous birds to have their young is when there is a good supply of insects and their larvae to feed them. This probably accounts for the fact that this class of birds, as a rule, attend to the rearing of their young in the spring and early summer. It has been suggested, and with some plausibility, that the same reasoning may be applied in accounting for the fact that the American goldfinch does not commence nesting until the first of July. Being members of the finch or sparrow family, their food consists mainly, not of insects, but of seeds, and it is not until in July that their favorite food such as the lettuce and thistle seed is ripe. It is,

"Just as the seeds are fit to fly
A yellow bird drops deftly down,
A living nugget from the sky,
And lights upon the thistle down."

When they "light upon the thistle down," as is shown in the illustration, they may have either of two objects in view, namely, the getting of the seed for food or the thistle down for the building of their nest. The nest is usually built near the ground and placed in the crotch of a coarse growing weed, or in a bush or low growing tree. The outer or cup part of it is built compactly of grass, moss or vegetable matter, well woven together and lined with thistle or other plant down. The female builds the nest and it takes her about five days to build it. The male attends her while she does the work and cheers her with his song. In the nest, when completed, is laid from four to six white eggs, tinged with blue. Incubation is attended to by the female, during which time the male is very attentive to and feeds her. In his picture of the gold finch Ernest Seton Thompson portrays the male feeding the female and entitles it "Goldfinch Gallantry." Incubation lasts about fifteen days, and in another fifteen days the young are strong enough to leave the nest. Both parents work industriously in feeding the young.

The flight of the goldfinch is wavy, undulating and graceful, and its song has the same characteristics, and most generally is sung while the bird is in flight, and "per-chic-o-ree, per-chic-o-ree" is a fair interpretation of it.

"Bit of sunshine taken wings
Or a spray of golden-rod?
On thistle top he sways and sings,
Or flung high to the sun, he sings—
'Perdita—Perdita—Perdita—
'Dita—Sweet, Sweet—'"

"At your approach," as Miss Blanchan says, "the busy company rises on the wing, and with a peculiar, wavy flight, rises and falls through the air, marking each undulation with a cluster of notes, sweet and clear, that come floating downward from the blue ether, where the birds seem to bound along exultant in their motion and song." It is by their flight that they are most easily distinguished from the sparrows in the winter season.

I have known these birds from my earliest childhood. I remember well how they came to our garden and fed upon the

lettuce and beet seed, and how this annoyd mother, who was in the habit of growing her own seeds. But that which fixes them most surely and certainly in my memory was the seeing of them in the clearing. I am glad that I have come through and witnessed every phase of life from that of the pioneer and frontiersman to the era of large cities, and witnessed all that that means in the latter days of American progress and civilization. The opening up of a country is a serious matter. It means hard toil and much deprivation, and yet there is a fascination about it. One feature connected with it was the "clearing," as it was called, of the land, which was then covered with a dense and heavy forest. This we did by first deadening the timber by cutting through the bark in a line entirely around the trees. After a year or two the trees would begin to decay and the limbs fall off, and the land would grow up in polk weeds, thistle and other seed-bearing weeds. This made an ideal place for the goldfinches. It was in such a clearing, one that I helped to make, that I saw the goldfinches most abundantly.

In his *Birds of Indiana*, Mr. Butler says of the goldfinches that "they are the seed destroyers par excellence. Sometimes it is something desirable, like the seed of lettuce, turnip and hemp, but more often it is the baneful dandelion, burdock, mullein and other pernicious weeds. Sunflower seed is the favorite food. In winter the seeds of grasses, rag weeds, horse weeds and occasionally sycamore are eaten." At Buzzard's Roost we grow quite a quantity of sunflowers, and it is a most interesting sight to see the goldfinches coming from every direction to feed upon them; it is a constant coming and going. They have also been reported as being destroyers of plant lice and the Hessian fly, Rocky Mountain locust and other insects.



FROM COL. CHI. ACAD. SCIENCES

RED-EYED VIREO.
(*Vireo olivaceus*).
 $\frac{1}{10}$ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLII.

October 9—October 15.

THE RED-EYED VIREO.

Order—Passeres

Suborder—Oscines

Family—Vireonidæ

Genus—Vireo

Subgenus—Vireosylva

Species—Vireo olivaceus

Length—5.50 to 6.50; wing, 3.10 to 3.80; tail, 3.15 to 3.30.

Migration—North, April; south, October.

“Apostle of the grove. Thy song divine

The God of Nature gave thee note by note,

To gladder, fuller make the message thine,

Rippling in beauty from thy dainty throat.

‘You see it. You know it. Do you hear me?

Do you believe it?’

Would that apostleship so sweet were mine?”

According to Apgar, the family Vireonidæ, having in it about fifty species, is composed exclusively of American, small, olive-backed birds of woods and thickets, with narrow, stout, notched and hooked bills. Our largest species is about the size of the English sparrow. The vireos are insect-eating birds, but, unlike many warblers and all the true flycatchers, they gather their prey while perching. With rather slow movements they patiently search over and under leaves, on twigs and bark, for spiders, beetles, caterpillars, etc. All our species are good singers, and some are noted for their vocal powers. They build beautiful basket-like nests, which are suspended from forked twigs, sometimes near the ground and sometimes from the highest parts of forest trees. They are usually to be found on trees or bushes, very rarely on the ground.

The red-eyed vireo is regarded as the best type of its family. Its color is indicated by its scientific name, for the word "vireo" means green and the word "olivaceus" an olive-green. In appearance the sexes are alike. The bill is short, strong and nearly straight, notched and hooked at the tip, greenish above and yellowish below; crown of head ashy, bordered on each side by a dusky line with a white strip below it, and over the eye; iris of the eye red, and it is this that gives to it its distinguishing name; upper parts of the body and tail are of a bright olive green; below nearly pure white, the undertail coverts having a sulphur tinge; toes moderate in size, the lateral ones partly united to the middle at the base, and this enables it to hold its insect food much as a shrike does.

It is a migrant whose range extends from Columbia and Trinidad north throughout eastern North America to Labrador, the Mackenzie Valley and British Columbia. Cooke in his *Migration of Birds*, says: "The red-eyed vireo, the commonest and most known of the tuneful family, winters in Central America, from Guatemala. The advent of the species in spring at the mouth of the Mississippi and its even-paced passage at twenty miles per day for six weeks to the head of the waters of the river are well attested by numerous records. But just about the time northern Nebraska is reached, and before they have appeared in any intervening country, red-eyed vireos are noted in British Columbia, one thousand miles to the northwest. Is the presence of the red-eyed vireo in British Columbia to be explained by the theory that it suddenly flies one thousand miles in a single night?" They come north the last half of April and return south the first of October. They breed from the Gulf States north throughout their northern range.

They mate after they come north and late in May or by the first of June their nests may be found. The nest is a beautiful piece of bird structure. In my collection of nests I have one which I obtained at Buzzard's Roost January 1, 1905. It is pensile and cup-shaped in form and laced to the forked limbs of a bush. The outside of it has woven into it a white material which I think has been taken from a spider's web or hornet's nest. It is surprising how neatly and substantially it

is built and how firmly it is attached to the limbs. The principal part of the outside of it consists of grass blades and the fiber of plants, and the inside is lined with very fine straws. No hair has been used in its construction. The outside parts seem to be glued together. I have several of these nests and they all seem to be fastened to the twigs with the same material, and it very much resembles the very fine fiber of the flax plant. It is very strong. The nest is usually found from four to thirty feet from the ground in a strong growing weed or in a bush. Often they are built in the shade trees about our homes in the city. In 1903 one built its nest so close to the front steps leading up to my neighbor's residence that one could have easily put his hands into it, and I doubt if he ever knew that it was there. Three to five eggs with a few dark specks on them constitute a clutch. I have no records relating to the incubation of these birds and I find nothing in the books about it.

The vireos are very musical—even more so than the warblers—and of them the red-eyed is the most musical. At Buzzard's Roost we have large numbers of them and they make the woods resonant with their songs. It is by their song that I know them best, for they are difficult birds to get sight of. Their song has had many interpretations. Mr. Wilson Flagg, who calls the red-eyed vireo "The Preacher," says: "This style of preaching is not declamation. Though constantly talking, he takes the part of the deliberate orator, who explains his subject in a few words, and then makes a pause for his hearers to reflect upon it. We might suppose him to be repeating moderately, with a pause between each sentence 'you see it—you know it—do you hear me—do you believe it?' All these strains are delivered with a rising reflection at the close, and with a pause, as if waiting for an answer." Mr. Chapman and Miss Blanchan concur with Mr. Flagg in his interpretation of the song and the manner of its uttering. Mrs. Mabel Osgood Wright says he is "The Talker," and that "this is what he says, stopping between every sentence: 'I know it—I made it—mustn't touch it—shouldn't like it—if you do it—I'll know it—you'll rue it.'" Miss Merriman says: "His song is a monotonous but cheerful monologue made up of

short, broken sentences in triplets, given as he hunts over the branches for food. 'Where's a worm? Where's a caterpillar? Where's a worm?' he queries as he goes, answering his own question very comfortably to himself." Mr. Butler says, "It seems to say, 'See it? See it? Who are you? Cheer up.'" Mr. Wm. L. Bailey says: "Listen to the persuasive tones of the red-eyed vireo—soft and sweet and full of eloquence, bidding us cast aside our griefs and be as happy as he." Mr. H. D. Minott says: "The red-eyed vireos have also a chip, a chatter like a miniature of the oriole's scold (and to be heard in the season of courtship), and a particularly characteristic querulous note, which, like others, can not be described accurately; hence the advantage of studying birds through nature, and not through books." Elsewhere I have spoken of the difficulty in interpreting the songs of our birds. Mr. Minott is right when he says: "Hence the advantage of studying birds through Nature, and not through books."

The warblers and vireos are among our most useful birds. Perhaps the vireos are the most useful. They are just as busy workers as the warblers, and instead of only making us a visit in the spring and autumn, as most of the warblers do, they remain with us throughout the summer. Hot summer days seem to have no terrors for them. From early dawn to late dusk they untiringly and unceasingly are at the work of taking the eggs and larvae of harmful insects from the leaves of our trees. As one author has well said, "They are, first and foremost, caterpillar eaters, but they also do great good by their fondness for bugs and weevils, May beetles, inch worms and leaf-eating beetles." Professor King examined the stomachs of forty-nine of these birds and found that their principal food consisted of fifty-six larvae, principally caterpillars; thirty-two insects' eggs, sixty-seven chinch bugs, thirty-two beetles and six grasshoppers, and that fourteen of them had eaten vegetable food. Dr. A. K. Fisher of the Department of Agriculture says that they are extremely fond of the aromatic fruits of the benzoin bush, sassafras and magnolias, and that when they gather together along the Gulf Coast in the autumn they feed exclusively on the berries of the magnolia and become exceedingly fat.

THE
OF
THE



CHAPTER XLIII.

October 16—October 22.

THE MOURNING DOVE.

Order—Columbæ

Family—Columbidæ

Genus—Zenaidura

Species—Zenaidura macroura

Length—11.00 to 13.00; wing, 5.70 to 6.10; tail, 5.70 to 6.50.

Migration—North, March; south, November.

“Oh, when 'tis summer weather,
And the yellow bee with fairy sound,
The waters clear is humming round,
And the cuckoo sings unseen,
And the leaves are waving green—
 Oh, then 'tis sweet,
 In some retreat,
To hear the murmuring dove,
With those on earth alone we love,
And to wind through the greenwood together.”

The family Columbidae, composed of the pigeons and doves, has in it about three hundred species, and members of it may be found in all parts of the world. Twelve of these are found in North America, but only four of them are found north of southern Texas and southern Florida. Most of them are found in the warmer regions of the earth. Some of them are strictly arboreal and others prefer fields and clearings. They are short-billed, small, round-headed, plump-bodied,

long-legged, smooth-plumaged birds, with a peculiar, more or less iridescent, grayish and brownish coloration. When drinking they do not raise the head as other birds do to swallow, but keep the bill immersed until the draught is finished. The young are born naked and fed by regurgitation.

The bill of the adult male mourning dove is black; eye of a glossy blackness, surrounded with a pale greenish blue skin; forehead and sides of neck a pale brown vinaceous; crown, upper part of the neck and wings a fine silky slate blue; under the ears a spot of deep black, immediately below which the plumage reflects the most vivid tints of green, gold and crimson; chin pale yellow ochre; back, scapulars and lesser wing coverts ashy brown; tertials spotted with black; primaries edged and tipped with white; tail long, cuneiform and consists of fourteen feathers; the four exterior ones on each side are marked with black about an inch from the tips, and white thence to the extremity; the next has less of white at the tip; these gradually lengthen to the four middle ones, which are wholly dark slate; all of them taper toward the points, the two middle ones most so; belly and vent whitish; legs and feet coral red, seamed with white. The adult female is about an inch shorter than the male and of a less brilliant color; she also lacks the rich silky blue on the crown of the male and much of the splendor of his neck.

The mourning dove in some places is a permanent resident and in others a migrant. Its range extends from the West Indies and Mexico north to southern Maine, Quebec, Ontario, Manitoba and British Columbia. It winters from southern New York, southern Illinois, Kansas and southern California southward. Those that migrate to the Middle West come north in March and return south in November. In flight the bird makes a whistling noise with its wings, and by Mr. Ernest Seton Thompson it is called "Whistling Wings." When in repose the wings and tail of the mourning dove and the yellow-billed cuckoo, which it much resembles, are held in the reverse position—the wings of the first overlapping the drooping tail, and of the second extending under an uplifted tail.

They mate early and nesting commences about the middle of April. As a rule the nest is built in various kinds of bushes,



Dove's nest and young ones

like that in the illustration, at a height of five to twenty feet from the ground. One that I observed at Somerleaze was built on an outspreading limb of a young elm, so low that I could easily look into it. Sometimes the nest is built in other places, they having been found on the ground, stumps, rocks and fence rails. The nest, like that of the cuckoo, is built of a few sticks and straws and is a very shabby affair. The wonder is that the eggs and the young of the birds remain upon it. Two pure white eggs constitute a clutch. Incubation lasts about two weeks and both the male and female take part in it. The young grow very rapidly and leave the nest early. Both parents are attentive to their young, even after they have left the nest. The nestlings are fed upon regurgitated food.

Baskett in his *Story of the Birds* says, "The pigeon group is very peculiar, even among this kind of birds, in that the young inserts its beak into that of the parent and finds there at first not half-digested food, but a curdlike secretion, or, rather more accurately, the thickened and 'peeled up' lining of the parent's crop. Until the young are about nine days old this occurs in both parents, as an unexplained physiological result of incubation. Toward the last of this period the curd is mixed largely with the food of the parent, and gradually ceases to form till the youngster finds for his dinner only bread without cheese."

The food of the adult bird consists of different kinds of grain, weed seeds, beechnuts, small acorns, worms and insects. Professor King took four thousand and sixteen seeds of pigeon grass from the stomach of a single bird, while from another seven thousand five hundred seeds of oxalis were taken. They like a larger variety of weed seed than any other bird, and feed on the seeds of the rag weed, pigeon grass, smart weed, bind weed and several other weeds. They are par excellence weed seed destroyers. After the nesting season is over they gather in flocks of varying size and frequent grain and corn fields. During the day they visit the nearest supply of fine gravel, which they eat in large quantities as an aid to digestion. At this time it is interesting to watch them. Their color is so much like that of the dust of the roadway that one

gets close to them before seeing them. They do not seem to be frightened, but will fly up and a little ahead to keep out of the way, and this they will do for some distance, and then divide and fly out in a circle and return to where they first started. If I were going to give the mourning dove another name, I would call it the "Road Flyer."

The last week of July and the first two weeks of August, 1882, I spent in the Rocky Mountains, and traveled over seven different ranges in a two-horse wagon with a camping outfit. The outing was a most pleasant and instructive one. As we ascended the mountains the vegetation, except the pretty Alpine flowers, became exceedingly scanty, and of quadrupeds, birds and insects, scarcely one could be seen. Excepting one grouse and jay the only birds we saw were mourning doves, and true to their habit of road flying, we saw them in small flocks in the highway before us. The last flock of them that we saw was the day before we reached the snow limit. That night we camped on a beautiful plateau and pitched our tent on a plat of wild strawberries from which we picked ripe fruit. The next morning the water in our camping utensils was covered with ice. That day I sat beside the ever-existing snow and made a snowball with my right hand and gathered Alpine flowers with my left.

Of the dove we have a very early account, for it is recorded in Genesis that Noah "sent forth a dove from him to see if the waters were abated from the face of the ground. But the dove found no rest for the sole of her foot, and she returned unto him in the ark. And again he sent forth the dove out of the ark. And the dove came unto him in the evening, and, lo, in her mouth was an olive leaf, plucked off." It has been well said that the dove is the bird of gentleness, quiet, singing in low, calm notes in the morning and eveningtide. It is the bird of innocence. It avoids every scene and place where harm is possible; it disturbs no one; brings loss or hurt to no one; costs no one anything. It lives in desert places and leafy shades in seclusion, giving everyone who sees it the idea of simple unobtrusive innocence that pleases by its gentleness. It is the bird of melancholy. There is a vague sadness in its low note—"Coo-o-o, ah-coo-o-o, o-o." The spirit of gentleness,

melancholy, innocence, love, holiness and hope is symbolized by the dove, and hence in the shape of a dove the Grace of God lighted on the head of the Messiah in the holy stream of Jordan. Yet in some States it is called sport to kill these birds, and by law they are placed on the list of game birds and a season fixed in which sportsmen, as they are called, may go abroad throughout the land and exterminate them. Shame on such laws and the men who enact them!

THE
JOURNAL
OF
THE
ROYAL ANTHROPOLOGICAL INSTITUTE
OF GREAT BRITAIN AND IRELAND
VOLUME 34
PART 1
1904



CEDAR WAXWING.
(*Ampelis cedrorum*).
¾ Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLIV.

October 23—October 29.

THE CEDAR WAXWING.

Order—Passeres

Suborder—Oscines

Family—Ampelidæ

Subfamily—Ampelinæ

Genus—Ampelis

Species—Ampelis cedrorum

Length—6.50 to 7.50; wing, 3.60 to 3.90; tail, 2.30 to 2.60.

Wanderers without any fixed periods of migration.

Among the early ornithologists there was a diversity of opinion where, in classifying the waxwings, they should be placed. Linnæus placed them in the family laniidæ composed of the shrikes; Brisson in the family turdidæ composed of the thrushes, etc.; and Illiger in the family corvidæ, composed of the crows, jays, etc. Linnæus afterward restored them to the family ampelidæ, and this is now recognized as their proper classification. It seems strange that there should have been such a diversity of opinion and that they should have been placed in such various and unlike families. For instance, the family laniidæ is a family of carnivorous birds and the waxwings are frugivorous; the family turdidæ is a family of singing birds, and the waxwings have not the gift of song; the family corvidæ are very noisy birds and are omniverous feeders, while on the other hand the waxwings are "the silent ones," and their principal food consists of fruit. The family ampelidæ is one of the smallest, having in it but two species, namely the Bohemian and cedar waxwings. Some of the lat-

ter systemists also include in it the phainopepla, a bird of Mexico and southern Texas. Like the shrikes, the first-named waxwing is a bird of the far north and the other of the south. Both have the same general appearance and characteristics. Of the two, the Bohemian is the largest.

The general color of the cedar waxwing is a reddish olive, changing to cinnamon anteriorly, ashy behind and yellowish below. The bill is short, broad at the base, compressed, notched at the tip and black. Forehead, chin and stripe through the eye black, the latter bordered above with white; base of forehead also white. Iris of the eye hazel. The wings are broad and pointed, the secondaries having red wax-like tips from which it gets its name of wax-wing. Tail blackish toward the end and tipped with yellow, and sometimes with red wax-like tips. Tarsus short, toes long and both black; claws curved and sharp. The entire plumage is of a remarkably fine and silky texture and lies extremely close to the body. The male and female are alike in appearance and both are crested.

The cedar waxwing is variously called the cedar bird, cherry bird, Quaker bird and Recollet. It gets its distinguishing names cedar and cherry from its fondness for the fruit of the cedar and cherry trees; Quaker bird, because of its modest colors and quiet and dignified manners; and Recollet from the color of its crest, which resembles the hood of a French religious order of that name. It is an irregular migrant whose range extends from Honduras and Jamaica north to Labrador. The average dates of its migrations do not seem to be well established. Except when nesting they are gregarious and rove over the country in flocks, some of which are very large.

One of the most beautiful sights that I have seen was a flock of about five hundred of these birds in the latter part of February, feeding on hackberries on North Meridian Street in the City of Indianapolis. There was an abundance of fruit upon the large trees in that locality and the flock lingered for several days feeding upon it. This gave me a good opportunity to observe them. I had read in the books about their polite way of passing food from one to another and of their billing and kissing each other, but had thought that what had been written were largely fancy sketches based upon imagin-

ary observations. In this I was mistaken, for I saw them billing or kissing each other, and it was a most interesting sight. On another occasion, during cherry time, I looked out of the window from my study and saw a small flock of them feeding upon my neighbor's May cherries, and saw some of them passing cherries to others. On this occasion I heard the peculiar lisping notes of "ze, ze, ze" of these birds, and we are told that it is the only noise they make in song or otherwise. As Ernest Thompson Seton says, they are "the silent ones."

The American goldfinch and cedar waxwing are alike in that they roam about the country in flocks when the other birds are nesting, and, as a rule, do not commence nest building until July and August. Until the summer of 1906 I had never seen the nest of a cedar waxwing. Sunday morning, August 5th, I noticed that a goldfinch had commenced building her nest on the lower limb of an elm tree on the front lawn at Somerleaze. She worked very industriously at it until nine o'clock, when I went down to see what progress she was making. I found she had gathered quite a quantity of material and was in the act of fitting it about her body. My presence alarmed her and she flew away. I came back to the veranda and resumed my watch. Presently a cedar waxwing, the first one that I had seen for three years, alighted on the lower end of the limb upon which the goldfinch had commenced her nest. In looking about she discovered the goldfinch's material, hopped up to it, took a bill full of it and flew away to the east. Soon she came back and took another bill full, and this she continued to do until she had taken all of the goldfinch's material. I followed her and found that she was using the goldfinch's material in building her own nest on another elm tree on the east lawn, about twenty feet from the ground.

In watching the waxwing on her nest I was reminded that Miss Merriam says: "Although it is always a pleasure to see them, they are particularly well worth watching at the nest. They are birds of remarkable affection and intelligence, and their habits are peculiarly interesting. By raising and lowering their crests they gain great variety of expression, and when about the nest assume protective attitudes, drawing themselves up to look like long-necked bottles or sticks of wood,

and sitting absolutely motionless till one would imagine longer endurance impossible." The nest of the waxwing is rather an elaborate affair, but rather loosely made of twigs, grass, root-lets and leaves and lined with finer material. The eggs, varying in number from three to five, are pale gray or with a slight tinge of green, and thinly spotted with purplish black and light dull purplish. Herrick says the food of the nestlings consists of "choke-cherries and red bird-cherries, varied with raspberries, blackberries and blue berries, together with insects, which during the last days of life at the nest constitutes about one-quarter of the fare."

Professor King says: "These birds are exceedingly hardy and voracious and for this reason have become adopted to a wide range of food. During the early spring and summer they are said to feed almost exclusively upon insects, and during the last of July and August they feed to a considerable extent upon them. They are dexterous fly catchers, and when in the woods they labor in a field peculiar to themselves. They often station themselves upon the topmost branches of some dead tree top which commands a view above the forest, and there watch hours together for insects, every few minutes beating off and up into the air to secure the winged forms that are passing above them. On the borders of the woods they often fly out six or more rods for passing insects. Besides being fly catchers they search among the foliage of the trees for larvae of various kinds." Professor Forbes has shown that in an orchard infested with canker worms the most useful bird was the cedar waxwing, about thirty of which had apparently taken up their residence in the orchard and were feeding entirely upon the worms. The number in each stomach, determined by actual count, ranged from seventy to one hundred and one, and it was usually one hundred. These thirty birds were, therefore, eating the pests at the rate of three thousand a day, or ninety thousand for the month during which the caterpillars were exposed to their attack.

Many years ago John King, a colored boy, lived with us. One evening, after I had returned from the office, he brought to my study a dead bird which he had found in the alley. It had not been dead long, for it was yet warm and limp. It was

most beautiful. I examined it carefully and could not find any marks of violence upon its body. Evidently it had flown against a telephone wire and thus killed itself. I did not know the bird, and after supper carried it to Mrs. Elizabeth C. Marmion, a student and great lover of birds, for identification. She identified it as the cedar waxwing, *ampelis cedrorum*. I spent an hour with her in looking through her library and hearing her tell how, in her after life, she became interested in the birds. I then and there resolved that I would take up the study of them, and made a list of what she regarded as her best books, and since then I have pursued the study of the birds in books and in their haunts as I have tramped through the fields and forests. I was then fifty-nine years old. Before that I had been a lover of outdoor life and had done much tramping, but without any object in view, except to enjoy myself. Since then a new zest has been added to my tramps and reading, that of trying to acquire exact knowledge concerning the common things I see and about which I read. I find the books full of interesting matter, much of which I have used in the preparation of this one. And this has all come of the fact that a colored boy sympathetically brought to my study the dead body of a cedar waxwing, one of the most beautiful of our birds—one that is always sleek, smooth and unruffled, and to the last degree particular about his clothes. The only thing that I have found charged against him is that he loves cherries and takes many of them that the selfish farmers think they ought to have. They forget the good he does in destroying destructive pests. At Buzzard's Roost the waxwings are to have all the cherries they can eat, for there I have planted and am growing eight hundred cherry trees, and from these no waxwing or other bird is ever to be driven.





CHAPTER XLV.

October 30—November 5.

THE FLICKER.

Order—Pici

Family—Picidæ

Genus—Colaptes

Species—Colaptes auratus

Length—12.00 to 12.75; wings, 5.50 to 6.60; tail, 4.00 to 4.95.

Migration—North, March; south, November.

“Whistles highhole out of the grove

His summoning loud and clear:

‘Chilly it may be down your way,

But the high south field has cheer.

On the sunward side of the chestnut stump

The wood-grubs wake and appear.

Come out to your plowing—come up to your plowing—

The time for plowing is here.’”

The family Picidæ, composed of the woodpeckers, has in it about three hundred and fifty species. These are found in the forests in all parts of the world except Australia and Madagascar. About twenty-five of them are found in North America. These birds have stout, straight, chisel-pointed bills, with which they are enabled to cut small holes in the wood for the purpose of securing insects, and large holes for nesting places. The tongue, as we shall see, is peculiarly long, has a spear-like tip, and is so arranged that it can be thrust out to a wonderful distance. The peculiar structure of the foot, with its two toes directed forward and two backward (except in one genus), assists them in clinging to an upright surface, while the pointed,

stiffened tail feathers serve as a prop when the bird is nesting. The eggs of woodpeckers are uniformly white, and this is true of all birds that nest in holes. The reason for this is that they are safe without protective colors.

The bill of the adult male flicker is brownish, long, well shaped and slightly curved; iris of the eye, dark; nape, scarlet and erectile. Chin and throat, lilac brown with black stripe on each side of the throat; wings well shaped, pointed, barred with black, and golden yellow below,—hence, its name golden-winged woodpecker; body above, light olivaceous brown with a light green tinge, each feather having a crescentic band of black near the end; rump and upper tail coverts white with black bars running across the coverts; in flight the white is very conspicuous; tail, brownish above, yellow below, tips black, slightly curved and very stiff, and it is used as a fulcrum when the bird is at work on the bole of a tree; breast bordered with a large black crescent; rest of under parts vinaceous, with black spots; tarsus, short; toes, in pairs, two before and two behind, long, heavily scaled and bluish-ash; the adult female in appearance, is like that of the male, except the black streak on the throat is wanting. No other bird has more names than the flicker. It would subserve no good purpose to give them here and try to account for their origin.

The range of the flicker extends from Florida and the Gulf coast north through the eastern United States and the maritime provinces of Canada to New Foundland and southern Labrador, and the shores of Hudson Bay, to about latitude 58 degrees; thence in a northwesterly direction to Alaska to about latitude 68 degrees; and west to Assiniboia, North Dakota, Nebraska and the eastern half of Texas. It winters southward from Indiana and Pennsylvania. Those that migrate come north in March and return south in October and the early part of November. They breed throughout their range. In the Middle West they mate about the middle of March and nidification begins about a fortnight later. In his courtship the male is an ardent wooer. Occasionally two males make love to the same female with their "flick-ah, flick-ah." I have often witnessed this. This is done good naturedly. No fighting nor duels are engaged in. As Major Bendire says, "It is an exceed-

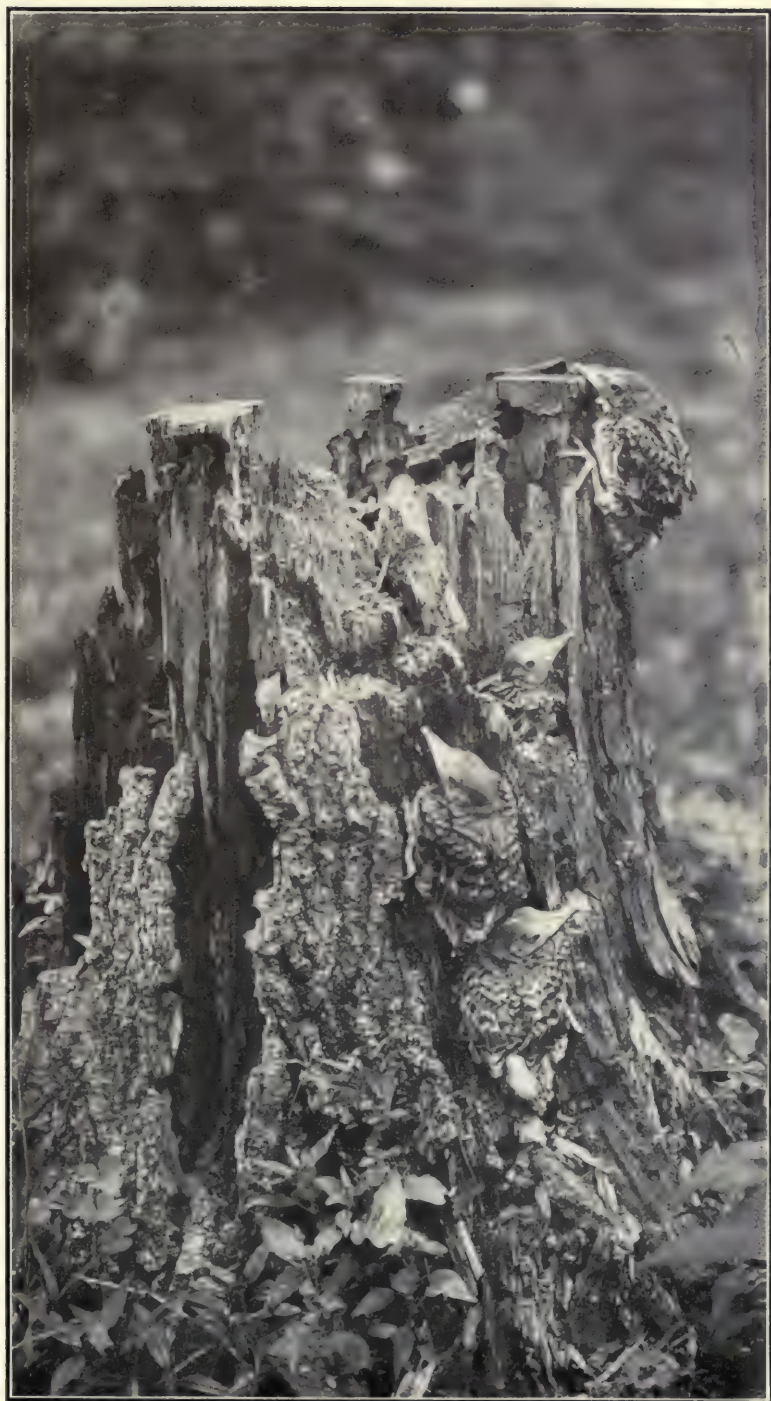
ingly interesting and amusing sight to see a couple of males paying their addresses to a coy and coquettish female; the apparent shyness of the suitors as they sidle up to her and as quickly retreat again, the sly glances given as one peeps from behind a limb watching the other—playing bo-peep—seem very human.”

The flicker is not very choice in the selection of a nesting place. Any old stump or a partly decayed limb of a tree, near the outskirts of a forest, along the banks of a creek, beside a country road, or in an old orchard will answer its purpose. At Buzzard's Roost favorite places for them are the dead limbs in the tops of the sycamore trees in the banks of Fall Creek. Mr. Butler in his *Birds of Indiana* says, “The flicker, with its curved bill can not chisel its way into trees as the other species do,” and that “It uses either a natural or artificial cavity.” It is true that the flicker has a slightly curved bill but I have not observed that “it can not chisel its way into trees as the other species do.” On the contrary, I regard it as quite an adept in doing this. Wilson takes much pains in describing the ingenuity and perseverance of these birds in digging out their nests. “I have seen,” he says, “where they have dug first five inches straight forward, and then downward more than twice that distance through a solid black oak.” C. Albert Reed, editor of *American Ornithology* says: “The birds take turns in the excavating for a home, and the work proceeds quite rapidly. Sometimes the chips are carried to a distance and deposited, but oftener they are strewn about directly under the nest. They drill into the tree for about four inches, then downward to the depth of from six inches to two feet.” Mrs. Wheelock in her most excellent book, *Birds of California*, says of the red-shafted flicker, a close cousin to the golden-shafted that “Both male and female birds share in the excavation, working in turns of about twenty minutes each. The site having been chosen, the male clings to the surface and marks with his bill a more or less regular circle in a series of dots, then begins excavating inside this area, using his bill, not with a sidewise twist, as do many of the woodpecker family, but striking downwards and prying off the chips as with a pickaxe.”

The eggs of the flicker usually are laid upon the fine chips

made in excavating the nest. Occasionally the nest is lined with a few blades of grass. Five to nine eggs constitute a set. The fecundity of the flicker is known to be very great. Prof. B. W. Everman reports having taken thirty-seven eggs from one of their nests, between May 4 and June 22, 1885, and in the *Young Oologist* of June, 1884, Mr. Charles L. Phillips records that he found a nest May 6, 1883, in a cavity of a large willow with two eggs in it, that he took one of them. Thereafter he took from the nest seventy-one eggs in seventy-three days. In *Forest and Stream*, June 25, 1885, Mr. Stewart Ogilby reports finding a brood of nineteen young flickers in one nest, all alive and apparently in good condition. The eggs are oval and glossy white. Incubation lasts about fifteen days. The parents are very devoted to their young, feeding them by regurgitation, first at the bottom of the nest and later from the mouth of it. The young are able to leave the nest in about sixteen days, but are fed by the parents for a considerable time after they have left it. I saw an old one doing this at Somerleaze, August 6, 1904. She came to the front lawn with four young ones, and led them in a search for ants. When she found where the ants were coming out of the ground, she would station one of the young there to watch for and catch them, and this it would do by sticking its bill far into the ant hole. Finding another hole she would put another young one to work in it—and so on, until she had them all at work eating the ants. The young seemed to be full grown and were very handsome birds. I noticed that they hopped in going over the ground much like an English sparrow does.

Accompanying this chapter is a half-tone photogravure made from a photograph taken by my friend Dr. Kellogg to illustrate the subject of protective coloration. This is a subject of ever increasing interest to bird students. By protective coloration is meant colors so adjusted as to conceal the bird. "We," as has been said by Mrs. Eckstrom in *The Bird Book*, "can not go into all the details of this subject,—even men of science are agreed to dispute about it—but we can at least notice among the birds of our acquaintance instances where color helps to conceal from our eyes. If all our sparrows, for example, had blue or red backs, how much more readily we



Young fleckers on a stump

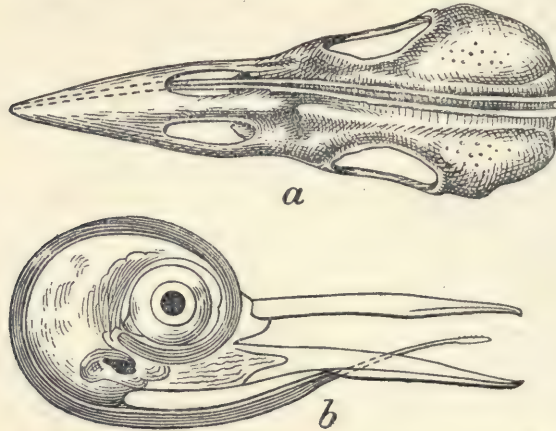
Kellogg

should discover them ; for sparrows have a way of staying near the ground, either directly upon it, or in low bushes, or about fences, where a bright-colored back and breast would serve to distinguish them instantly. Now most of our common sparrows, we find, are dull-colored little birds varied with stripes about the back, breast, and head that seem to blend with the colors of the earth and with the grass stems they live among." In the illustration, notice how the colors of the young flickers blend with the color of the old stump, and the same would be true were they upon the bole of a tree.

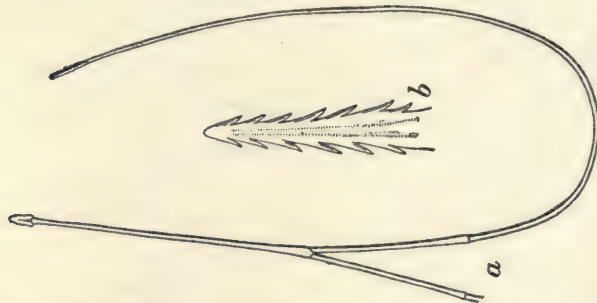
The white patch on the rump of the flicker which is seen only when it is in flight, is a fine example to illustrate another subject which is of much interest to bird students, and that is, the subject of color calls among the birds. Recognition, signaling, or other directive colors have, with more or less reason, been made to include many different types of markings. As Baskett has well said in *The Story of the Birds*, "Birds strikingly exhibit these social or signal colors on various parts of the body. They may be conspicuous head markings, as in some plovers ; throat, patches, as in our bob-white and wild (Canada) goose ; rump spots as in the flicker or lapwing ; various tail spots, tips or blotches, or the entire whiteness of one or more tail feathers ; wholly or partial white feathers among the wing quills, or white blotches or bars upon the smaller feathers of the wings—more conspicuous usually when spread in flight. There are many other forms—the entire wing or back or some other part being conspicuous."

The tongue of this and of the other woodpeckers is a most useful instrument. Its construction is most wonderful. That of the flicker can be extended two and a half inches beyond the tip of the bill. Wilson says "its tongue is round, worm-shaped, flattened towards the tip, pointed, and furnished with minute barbs ; it is long, missile, and can be instantly protruded to an uncommon distance. The *os hyoides*, or internal parts of the tongue, like those of its tribe, is a substance for strength and elasticity resembling whalebone, divided into two branches, each the thickness of a knitting-needle, that pass, one on each side of the neck, (see illustration), to the hind-head, where they unite and run along the skull in a groove,

covered with a thin membrane or sheath; descend into upper mandible by the right side of the right nostril, and reach to within half an inch of the point of the bill, to which they are attached by another extremely elastic membrane, that yields when the tongue is thrown out, and contracts as it is re-



Special Development of Tongues of Woodpeckers: *a*, skull of flicker (*Colaptes auratus*), showing root of tongue extending to tip of bill; *b*, head of hairy woodpecker (*Dryobates villosus*), showing root of tongue curving around eye.



Tongue of Woodpecker: *a*, hyoid of flicker (*Colaptes auratus*); *b*, tip of tongue of downy woodpecker (*Dryobates pubescens*).

tracted." The surface of the tongue is covered with a viscid substance which causes the insects and larvae to adhere to it when it is protruded into a boring or an ant's nest. The tip of the tongue is sharp pointed and barbed like a fisherman's spear, thus enabling the bird to spear the larvae of a borer that is deep down in its hole, and pull it out.

The flicker, although one of the woodpeckers, has habits quite different from the majority of its family. Instead of drilling holes in trees for all of its living, it gets most of its food from the ground. Nearly half of its food consists of ants. In two hundred and thirty stomachs examined at Washington fifty-six per cent. was animal matter, thirty-nine per cent. vegetable, and five per cent mineral. Two of them contained over three thousand ants each. Other insects consisted of beetles, bugs, grasshoppers, crickets, caterpillars, May-flies, and white ants.

In the chapter on the cardinal the various kinds of birds' bills and the various uses to which they are put is mentioned. One of the uses not mentioned there is that of dressing or preening of the feathers. The illustration accompanying this chapter shows the flicker in the act of doing this. It is done by drawing the feathers from their base outward between the mandibles. Not only do they clean them but they also oil them. For this purpose Nature has provided them with an oil gland which is constantly replenished, so that the bird is never without a supply. This gland is located under the upper tail coverts, and is always cut out when a fowl is being dressed for the table. Our illustration shows the bird in the act of reaching for it. The oil is extracted by the bird's pinching or pressing the gland with its mandibles.

1000 of
1000000



RED-HEADED WOODPECKER.
(*Melanerpes erythrocephalus*).
Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLVI.

November 6—November 12.

THE RED-HEADED WOODPECKER.

Order—Pici *Family*—Picidæ
Genus—*Melanerpes* *Species*—*Melanerpes erythrocephalus*
Length—9.25 to 9.75; wing, 5.30 to 5.70; tail, 3.60 to 3.75.
Irregular resident.

"How does he know where to dig his hole,
The woodpecker there in the elm bole?
How does he know what kind of a limb
To use for a drum or to burrow in?
How does he find where the young grub grows—
I'd like to know."

To answer the questions propounded by the poet, and many others equally curious, has made the study of the woodpeckers an intensely interesting one. Of all our birds, perhaps none of them are more strangely interesting than they. Of this family, the red-headed woodpecker is a conspicuous member.

Of this woodpecker, Wilson says, "His tri-colored plumage, red, white, and black glossed with steel blue, is so striking, and characteristic; and his predatory habits in the orchards and corn-fields, added to his numbers, and fondness for hovering along the fences, so notorious, that almost every child is acquainted with him." And Mr. Burroughs says, "His deliberate, dignified ways and his bright uniform of red, white and steel-blue bespeak him as an officer of rank." And might he not have added as an American officer, since his colors are red,

white and blue? In flight "with a white gown, a black mantle and a scarlet hood," the red-headed woodpecker is a beautiful bird. His flight is undulating and surging. After two or three strokes of the wings, he almost closes them and then follows the curving wave of his flight. He is an easy bird to identify.

In appearance the female is like the male. The bill of this woodpecker is light blue, black towards the extremity, and strong; iris of eye dark hazel; head and neck of the adult, crimson red all around with a narrow crescent of black on the upper part of the breast; wings well shaped, bluish-black with secondaries white, tinted with red; upper part of tail, bluish-black with under coverts white; rump and lower parts of body white; rump and lower parts of body white with reddish tint; legs and feet bluish-green; claws light blue. During the first season, the head and neck of the young birds are blackish-gray and the white on the wings is spotted with black.

The red-headed woodpecker is a bird of temperate North America. Its range extends from the southern United States north through the states, and the eastern provinces of the Dominion of Canada to about latitude 46 degrees; rare or casual only in the maritime provinces; in the interior in Manitoba north to about latitude 50 degrees; west in the United States to the eastern slopes of the Rocky Mountains from Montana to Colorado, western Kansas, the Indian Territory, and the eastern half of Texas. It is an irregular migrant. Those that migrate, go southward the last of October and the first half of November and return north very early, if the conditions are favorable.

The migration of the woodpecker depends very much upon the supply of food, which formerly during the winter months, consisted largely of beechnuts and acorns that had been stored away by it in the knot holes of the trees and the cracks of fence stakes. My brother and I, when we were boys, were required to get in the winter wood from our father's woodland, which was composed largely of sugar maple and beech trees. We seldom felled a tree without examining it to see if there were any knot holes in it which had been taken possession of by the woodpeckers, and usually we were rewarded for our trouble. Often we would get a quart of beechnuts from one of these holes. It was surprising how tightly the beechnuts were



Young woodpecker

Kellogg

stored away in the holes. Those were the palmy days for these woodpeckers. The extensive forest of beech and oak furnished them their winter supply of food, and the decaying trees in the many "clearings" their summer supply of insects and larvae with which to feed their young. It is not so now. The forests have disappeared and when the winter comes the woodpeckers must migrate southward until they find a place where their food is not covered with snow. In the summer time they are compelled to obtain much of their food from the air and the ground, and because of this they are taking on new habits of life. Many of them are becoming adept flycatchers, and it is interesting to see them dart off from a place of advantage and catch a passing insect on the wing, or a grasshopper or beetle that may be on the ground. At Buzzard's Roost we have many fine beech trees. One of these is the largest of its kind that I have ever seen. At the base it measures fifteen feet in circumference. See illustration opposite page two. It is known as the Nesbit beech, from the circumstance, that two men by the name of Nesbit, in hauling logs with an ox team from the uplands down the hill from where the cabins stand, the chain which locked the wagon broke, and that caused the wagon to be crowded upon the oxen, and them to run down the hill and against this tree and the neck of one of the oxen to be broken and thereby killing it. These trees are to be preserved for the birds and as an evidence of what was at one time plentiful in this country.

The red-headed woodpecker breeds throughout its range. Its nest is a fine specimen of workmanship and is usually excavated in the bole or limb of a tree, telegraph pole or fence stake, and ranges in height from six to seventy-five feet from the ground. It is when excavating these that it can be said that he sings:

"I am birddom's carpenter;
Can make the splinters fly;
On poles and posts and forest trees
My merry trade I ply.
My bill is my chisel,
My tail is my stool."

And true enough he is a carpenter for he makes a true circle for his hole, and his bill is his chisel and his tail is his

stool. The bill is long, straight and wedge-shaped, with flattened and truncated tip and sides more or less ridged and is admirably adapted to making such excavations, and pecking holes in the bark and boles of the trees in search of insects and larvae which are there concealed. And it is wonderful how he uses his tail when doing these things. The tail feathers are short, stiff and spinelike at the ends. He has four toes—two in front and two behind. With these he takes hold of the bole of the tree with a vice-like grip, and then throws himself back on his tail, which he uses as a fulcrum for support, and then he is ready for work with his ivory-billed chisel.

I have purposely used the masculine pronoun in describing the building of the nest. The books, as far as I have examined them, say that both the male and female take part in building the nest. In the January number, 1902, of *Birds and Nature*, is a carefully prepared article by William Harrison Lewis in which he says, "For five years, with each returning spring, a pair of red-headed woodpeckers has come, to make their nest and rear their young near my cabin door. It was on a cold drizzly day the last of April, when I observed my neighbor * * * He proved to be no stickler for time, working early and late with short intermissions, when he would dart out into the air and stop some passing insect that was quickly disposed of. At the end of two weeks the nest had been completed on the same day the female arrived. Was it a coincidence? It would seem so, for each succeeding year the male preceded his mate by a fortnight, in which time the place was selected and the new home made ready. * * * It was about the tenth of May of the following spring when my red-headed neighbor returned from his southern trip. * * * After several days' work in the new nest, he came in contact with the hard resinous heart of a knot that he was unable to remove. To get by this obstruction and still be able to utilize the work done, he changed the entrance from a circle to an ellipse by extending it downward. This bit of strategy worked well in getting by the difficulty, but it proved to be only temporary. The nest was completed in the allotted two weeks and the female came on time. After a very warm greeting she was shown the nest for her approval; but on sight of the new-

fangled entrance, she halted, showing her disapproval in many ways. He made many efforts during the next two days to overcome her objections. She was obdurate, and, after sitting quiet until he was through his demonstrations and chatter, she flew away over the fields, uttering a loud cry as she left him sticking to the side of the tree. He sat still a few moments, seemingly in a brown study, then he began hopping about the trunk of the tree, where in a short time he had selected a place and gone to work with a will in making a new nest, that was completed in a little more than eight days. Very little was seen of the female during the completion of the new home. She was in the yard a few times, but never near the tree where the male was at work. He had made no mistake this time, the entrance was round and cut clean as an augur hole. When the madam was escorted to the new nest there was no hesitancy about inspecting it; she entered at once. Coming out a moment later, she made it known that the nest was satisfactory. The old man was jubilant, expressing it by voice and action." I leave the matter with the reader to judge which of them builds the nest.

The eggs of the red-headed woodpecker are a pure white color, short and almost ovate. An egg is laid daily; from four to eight eggs constitute a clutch. Incubation lasts about two weeks, and both sexes assist in it. Mr. Lewis in his account of My Red-Headed Neighbor during their fourth year with him says that "Household affairs went along smoothly till one day the old man was keeping house while the madam had gone out for lunch. At the expiration of about twenty minutes he came out of the nest. As he flew away he gave a loud call that on former occasions had invariably brought his mate to take charge of the nest, but to this call she did not answer. She never returned. He waited a few moments, calling for her, then returned to the nest. Ten minutes later he came out again repeating the call several times as he flew from the tree to the house and back again to the nest, about which he showed much concern. Five minutes more and for the third time he left the nest, flying down in the orchard where the female often went for food. Soon returning he went direct to the nest, seeming to understand that some misfor-

tune had overtaken his mate. * * * He stuck to the nest for the next three days. Then he carried out the broken shells and began bringing food for two mouths that were always agape. * * * The undivided care of the family left little time for personal attention. He looked shabby and forlorn by the time the young birds were old enough to quit the nest and seek their own food. Then he spent much time in mending his appearance."

The young are fed one at a time, and from the rim of the nest as soon as they are able to climb up to it. When one has been thus fed, it stands aside and makes way for another. A favorite place for the young after they have left the nest is on the stakes of a rail fence along a highway. These woodpeckers are very fond of cherries and carry many of them to their young. When I was young they were regarded as thieves, and a favorite pastime with the farmers was to set a pole in the ground near a cherry tree for them to alight upon and when they did so, to strike it with the poll of an ax or some other blunt instrument, and stun them so that they would fall to the ground and become the easy victims of those who begrudged them the cherries they were taking. This was a cruel practice, for it not only took the lives of the old birds, but their young who must necessarily starve to death. Happily the people are being educated to the great value of these birds and no longer begrudge them the cherries they take in feeding their young, and the ruthless killing of them is a thing of the past. A careful study of the food of these birds by the United States Department of Agriculture shows that it consists of fifty per cent. animal, forty-seven per cent. vegetable and three per cent. mineral matter. The animal matter consists of ants, wasps, beetles, grasshoppers, moths, caterpillars, spiders, and myriapods. Ants amounted to about eleven per cent; beetles nearly one-third and grasshoppers and crickets six per cent. of the food taken by them. Prof. Forbes, in his examination of their food in Michigan found that thirty-two per cent. of it consisted of canker worms.

This woodpecker is sociable, playful and noisy. He loves to play "hide and peep." This he does by alighting on the bole of a tree near his observer and shuffling himself around on the

farther side of the tree and then peeping at him. When tramping in the woods I have had them do this, and quite occasionally as much as to say, "Why are you here" and "what do you want?" They do not sing. Their call is a loud "tchur, tchur" or "ker-r-ruck" and another is "charr, charr" or "Kahrr, kahrr." As a musician he is a drummer. For a drum he uses the dead, resonant bole of a tree, or a fence stake in the country or a telephone or telegraph pole in the city. On the latter he "hammers out a concord of sweet sounds from the mellow wood-notes, the clear peal of the glass, and the ringing overtures of the wires." They are very fond of drumming on a sheet of tin and frequently are heard from the roofs of our dwellings.

THE
OF
COLUMBIA



DOWNY WOODPECKER.
(*Dryobates pubescens*).
Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLVII.

November 13—November 19.

THE DOWNY WOODPECKER.

Order—Pici

Family—Picidæ

Genus—Dryobates

Species—Dryobates pubescens

Length—6.25 to 7.00; wing, 3.55 to 4.15; tail, 2.30 to 2.70.

Permanent resident.

“Do you know a little bird that in mourning shades is dressed,
Black and white upon his wings, black and white upon his head—
Underneath a bib of white on his pretty throat and breast;
While above upon his nape gleams a shining bow of red?”

The downy woodpecker is the smallest of its family inhabiting the United States. As its name indicates it has a downy coat. In appearance the sexes are alike, except that the female has no red on the back of the head. The bill of the adult male is of a bluish horn color, grooved, and wedge-formed like most of his family; tongue formed like that of the flicker, horny towards the tip, where for one-eighth of an inch it is barbed; iris of the eye, hazel; top of the head black; across the back of it is a red band; over and underneath the eyes is a white stripe; extending around the head from eye to eye is a black band; wings black and spotted with white; tail with recurved tips feathers except outside ones, black and occasionally tipped with white; outer tail feathers white barred with black; under part of body white, slightly tinged with red; tarsus, very short; toes in pairs, two in front and two to the rear.

The downy woodpecker is distributed over a large extent of territory, but is a non-migrant. When once located it re-

mains in that vicinity and may be found throughout the year. Its geographical distribution extends from Florida and the Gulf States north through the United States and the Dominion of Canada into Southern Labrador, to about latitude 55 degrees; thence in a northerly direction to northern Alaska, to about latitude 66 degrees; west to Manitoba, North and South Dakota, Nebraska, Kansas, the Indian Territory, and eastern Texas. Irregularly to Manitoba, Colorado, Idaho, Oregon, Washington and California. It breeds throughout most of its range. In the Middle West the nest is begun about the second or third week in May. The holes for the nest are usually excavated in a dead willow, poplar, oak, or linden tree and varies in height from four to thirty feet, usually about fifteen feet. The entrance is just large enough to admit the bird and varies from one and a half to two inches. As is the rule with the woodpeckers, the hole is dug into the tree at a right angle for some distance and then downward. The lower part of the cavity is enlarged in a gourd-like shape. "Both sexes," says Major Bendire, "assist in this work, and it takes about a week to complete a suitable excavation. After it is finished the male frequently digs out a somewhat shallower one for himself in the same tree, or in another close by. A new site is usually selected each season in the vicinity of the old one, but occasionally this is cleaned out, deepened a little, and used for several years in succession. Each pair of birds lay claim to a certain range, and intruders on this are driven away." Three to six glossy white eggs constitute a clutch. Incubation lasts about twelve days and both sexes take part in it. But one brood is raised in a season. The young are diligently cared for both in and after they have left the nest. Dr. Judd says, "The stomachs of three nestling downy woodpeckers and their parents contained ants, spiders, and beetles. The young had eaten more spiders and fewer beetles than the adults, but the principal food in all the stomachs was ants.

Prof. Beal in his very able report, *How Birds Affect the Orchard* says, "A study of the contents of the stomachs of many specimens of the downy woodpecker shows that nearly one-fourth of the yearly food consists of ants. A celebrated French writer upon popular natural history has spoken of the

ant as 'the little black milkmaid, who pastures her green cows in the meadow of a rose leaf.' This is a graphic, if not somewhat fanciful, picture of the relations of ants and plant lice; but unfortunately the black milkmaid does not limit her pastures to the rose-leaf meadows. There are comparatively few plants which do not suffer to some extent by the ravages of plant lice, and fruit trees and ornamental shrubs seem to be more subject to their attacks. Ants protect these lice from harm, and when the plant on which they are feeding is exhausted, carry them to fresh pastures, and in some cases actually build shelters over them. Besides destroying the ants the downy woodpecker eats many of the lice. * * * Of the food of the downy woodpecker 13 per cent. consists of wood-boring coleopterous larvae, insects that do an immense amount of damage to fruit and forest trees, and are, as stated, protected from the attack of ordinary birds by their habit of burrowing in trees. Besides the grubs taken from within the wood, the woodpecker eats many of the parent insects from whose eggs these grubs are hatched. It also destroys numerous other species that live upon the foliage and bark. Caterpillars, both those that bore into the tree and those that live upon the leaves, constitute 16 per cent. of its food, and bugs that live on berries and give to them such a disagreeable taste form a considerable portion of its diet. Bark lice or scale insects, pests of the worst description, are also eaten by this bird, and to an extent that is surprising when their minute size is considered." Is not this a good record for the "Downy"?

The reader by examining the illustration will note that immediately under the bill of "Downy" and to the right of it are two small round holes in the bark of the tree to which he clings. These are suggestive. "Downy" is sometimes called the Little Guinea Woodpecker and the Little Sapsucker. As the last name indicates he is accused of being a sapsucker, whether rightfully so or not, I am not prepared to say. From what Prof. Beal says of his food, I am inclined to the belief that the holes are made to catch larvae and ants, which we know frequently are found under and in the crevices of the bark of trees. As I have walked to and from my office I have

frequently found fresh bits of bark at the base of the trees and almost invariably have found that it was occasioned by the Downy, quite a few of whom come into our city—especially in the winter season. Winter seems to have no terrors for them. The contented little creatures always seem so busy. I have observed that they not only work on the boles of the trees but far out on the limbs of them.

They have a very pleasing little call note which they utter as they work.

"A little woodpecker am I,
And you may always know
When I am searching for a worm,
For tap, tap, tap, I go."

Of this woodpecker, Major Bendire says: "It is not as noisy a bird as the majority of woodpeckers, and utters but few notes, except during mating season when two or three males are in pursuit of a female. While searching for food it utters occasionally a low 'pshir, pshir.' One of its common call notes sounds like 'pwit, pwit,' terminating with 'tchee, tchee, tchee,' rapidly repeated. Another note, uttered when a pair are chasing each other, reminds one somewhat of the 'kick-kick' of the flicker, but is not uttered as loudly. In the early spring the male frequently amuses himself by persistently drumming on some resonant dry limb, often for fifteen minutes at a time, to attract the attention of his mate, or as a challenge to some rival, but later in the season this is less frequently heard. It is exceedingly graceful in all its movements on a tree trunk, moving up or down as well as sidewise with equal facility, and I have seen it hanging perfectly motionless for minutes at a time in the same position, apparently as if in deep thought."

The one thing most noticeable about the birds is their adaptability to all conditions. For instance, we have birds of the field and prairie that live on the ground; birds that live on the bodies of our trees; birds that live in the tree tops among the twigs and leaves of the trees, and birds that live in mid-air and are almost constantly in flight. Each of these is wonderfully adapted to its sphere and condition of life, and as I look at it, especially created and fitted to wage a warfare for

the better condition of man. But for this ceaseless warfare of the birds, man could not continue to exist. The conflict of good and evil is not within man alone; in the outer world it is ever apparent. Without the birds, the insect pests of the world would destroy all vegetable life, and this is absolutely essential to man's continued existence. And so it occurs to me that of all living things the birds are man's best friends.

The woodpecker family is the one that lives upon the boles or bodies of our trees. The wonderful construction of "the woodpecker with its feet, tail, beak and tongue so admirably adapted to catch insects under the bark of trees," was one of the things that greatly interested Charles Darwin during the thirty years that he was gathering the facts and material for that great work, the *Origin of Species*. If it would interest so great a mind as his, surely then, in it there is matter for us to reflect upon.

A large, stylized illustration of a flock of birds in flight, rendered in a light, sketchy style against a dark background. The birds are depicted in various poses, some in flight and others resting, scattered across the lower half of the page.



WHITE-BREASTED NUTHATCH.
(*Sitta carolinensis*)
Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO

CHAPTER XLVIII.

November 20—November 26.

THE WHITE-BREASTED NUTHATCH.

Order—Passeres.

Suborder—Oscines.

Family—Paridæ.

Subfamily—Sittinæ.

Genus—Sitta.

Species—Sitta carolinensis.

Length—5.25 to 6.15; wing, 3.50 to 3.75; tail, 1.95 to 2.20.

Permanent resident.

"Do you know the pretty nuthatch in his suit of ashen blue,
With his dainty bib of white and his coat of modest brown?
You may hear him sing, sometimes, though his notes are harsh and few
But you'll know him when you see him by the black upon his crown."

The family Paridæ is composed of about one hundred members and these are distributed throughout the temperate portions of the northern hemisphere. It is divided into two subfamilies, namely Sittinæ, composed of the nuthatches, and Parinæ, composed of the chickadees. There are about twenty species of the nuthatches. These are small, active, restless, creeping, short-tailed, long-winged birds, marked with white, black and brown colors. They derive their name from the habit of wedging nuts into crevices of the bark, and then hacking or hammering away with the bill till the shell is broken. These nuts, however, form only a small portion of their food; generally they are insect eaters. The white-breasted nuthatch is sometimes called the white-bellied nuthatch, Carolina nuthatch, tomtit, tree-mouse, and devil downhead.

The bill of this bird is black, long and sharp pointed like that of the woodpecker family and well adapted to the work of taking from the rough bark crevices of the trees the insects and their larvae upon which they feed, and to making excavations for their nests; iris of the eye brown; general color above of an ashy blue, with top of head and neck black; wings edged with black which fades to brown; tail nearly even at the end the two middle feathers slate color, the others black, tipped with slate, and crossed diagonally with a streak of white; sides of the head and most of the underparts of the body are white, and this gives to the bird its distinguishing name; legs and feet dull blue. The female differs from the male in having the head rather darker, and the line through the eye less conspicuous. Unlike the woodpeckers, they have but one hinder toe instead of two, and the tail feathers are without terminal spines, and are not used for support when working in the boles of trees.

The white-breasted nuthatch is a resident throughout its range, which extends throughout Eastern North America northward from Georgia and Texas to New Brunswick, Ontario and Minnesota and west to Kansas. It breeds throughout its range. The breeding season begins about the middle of April, and frequently two broods are reared in a season. The nest may be found in the natural cavity of a tree, an excavation made by it in a decayed stump or tree or in the abandoned hole of a woodpecker, from the ground up to a height of sixty feet, and is made of feathers, leaves and hair. The eggs, numbering from five to ten, are dull white, evenly spotted with brown and lavender at the larger end.

The nuthatch is a bold, active and familiar bird, and is generally found in the depths of the woods. Sometimes they make their homes in our orchards. At Somerleaze a pair of them are frequent visitors to the trees upon our lawn, and especially the large wild cherry that stands in front of the veranda. I always know when they are making us a visit by their contented call, which to me sounds like a grunt and is interpreted by the words "uh-uh-uh" or "cuh-cuh-cuh." As Mr. Baskett says, his "arrival is sudden and seems often distinguished by turning a somersault before alighting, head downward, on

the tree trunk, as if he had changed his mind so suddenly about alighting that it unbalanced him." It is said that they sleep clinging to a tree with their heads in this position. July 8, 1904, I saw one clinging to the underneath side of a horizontal limb with his back to the ground. Truly he may be called the "upside down bird." How beautifully Edith M. Thomas describes him in her poem, "To a Nuthatch," when she says:

"Shrewd little hunter of woods all gray,
Whom I meet on my walk of a winter day,
You're busy inspecting each cranny and hole
In the ragged bark of yon hickory bole;
You intent on your task, and I on the law
Of your wonderful head and gymnastic claw

"The woodpecker well may despair his feat—
Only the fly with you can compete!
So much is clear; but I fain would know
How you can so reckless and fearless go,
Head upward, head downward, all one to you,
Zenith and nadir, the same to your view."

The nuthatches are beneficial birds and should be protected. Professor King examined twenty-five specimens and found that fourteen had eaten beetles, while others had eaten ants, caterpillars, grubs, spiders and a crysalis, a few toadstools and acorns, and a small quantity of corn. They destroy immense numbers of the eggs of injurious insects which have been deposited in the crevices and under the bark of trees. There are times when the trees are incased in ice, and the birds which obtain their food in this way can not get it. At such times they are driven by necessity into our gardens and lawns in search of food. We should then come to their rescue, and firmly fasten pieces of suet and other scraps of meat to the limbs of the trees. By so doing we will do them and ourselves a service, and we will have the companionship of these interesting little friends of ours. Professor Sanderson, who made a special study of them during the winter, says that the larger proportion of their food was composed of seeds, which gradually decreased as the insect life became more abundant. In the spring nearly eighty per cent. of their food consisted of insects, chiefly adults.



CHAPTER XLIX.

November 27—December 3.

THE TUFTED TITMOUSE.

Order—Passeres.

Suborder—Oscines.

Family—Paridæ.

Subfamily—Parinæ.

Genus—Parus.

Species—Parus bicolor.

Length—5.65 to 6.50; wing, 3.05 to 3.45; tail, 2.80 to 3.15.

Permanent resident.

"When the tardy sun, in winter,
Briefly shines—a blossom hunter—
To a tune, first sweet then sweeter,
Sings the Titmouse: 'Peter, Peter!'
And when maple sap is falling,
Then he magnifies his calling,
As in clearer notes repeats he:
'Peter, Peter, te, te, te, te.'"

The subfamily Parinæ, of which the tufted titmouse is a member, contains about seventy-five species. Of these thirteen belong to North America. The range of the tufted titmouse extends throughout the eastern United States, north to the Connecticut valley and southern Michigan and west to central Nebraska and Texas. Comparatively few of them are found in New England, and this perhaps accounts for the fact that not much has been written about them in the east. In some of the books no mention is made of them. They are irregular migrants. Most of them remain throughout the year when they have taken up their abode. They mate in April

and May and breed until midsummer. They nest in woodpecker and knot holes and other cavities, generally five to thirty feet from the ground.

"Then to some tall tree's bole, hollow,
If his flight your eyes but follow,
There, the curious crowd evading,
You may find his partner brooding
Eggs with thin shells, tinted, creamy,
Lilac, rufous, hinting dreamy
Forethought of the life abiding,
Songless yet, within them abiding."

"And, forsaking each great singer,
If you'll for a moment linger
With your thoughts on him, you'll hear him
Warbling to the wifey near him:
'Peter, Peter! who is neater,
Prettier, wiser or discreeter,
Than you are dear heart? I greet ye:
Peter, Peter, te, te, te, te!'"

Some of the names of the tufted titmouse are crested titmouse, crested tomtit, Peter-peter, and sugar bird. The adult male and female are alike in size, contour, color and appearance. Both have conspicuous crests and a bill which is black; tongue very short, truncate and ending with three or four sharp points; eye dark hazel; lores white; gray above, whitish below with sides of reddish brown; wing feathers relieved with dusky on their inner vanes; tail a little forked, considerably concave below, and of the same color as the back.

Their food consists entirely of insects, their eggs and larvae, and for this reason they are of our most useful birds. At Somerleaze they have shown themselves to be very busy workers in our orchard and I have been much interested in watching them going over our elms for insects and worms on the leaves. In doing this they catch a limb with their feet and swing with their heads downward, so as to be able to inspect the under side of the leaves. One Sunday afternoon in 1900 a pair of them brought their young ones to the trees on our front lawn and this gave me an excellent opportunity to observe them from the veranda with a glass. The young ones

seemed larger than their parents, and such voracious appetites as they did have! The parents worked faithfully all that afternoon, and did nothing but feed their hungry progeny. One of the trees was the very large wild cherry and in it was a nest of tent caterpillars. The titmice discovered it, attacked it, and destroyed every caterpillar in it. It was interesting to watch them do it. They would fly to the nest, catch a caterpillar and fly with it to a limb close by, mascerate it, and then fly to one of their young and give the caterpillar to it. During that afternoon I think they went over every tree on the lawn, and there were many of them, hunting for insects and worms for their young ones.

Mr. Baskett in *The Story of the Birds* says that "In the old days when smokehouses of the rural regions were of logs unchinked, these little fellows dug into the hams and middlings, and the crested tit is especially known as the 'meat eater' among some of the southern folk." In the country, at my father's log cabin home, was one of those unchinked log smoke-houses, and how well do I remember when the cold winter days came how the titmice would visit it. And this is suggestive. Now that the old smokehouses have disappeared why not put out some scraps of meat for the birds in winter, when the insects and worms are scarce and hard to find?

One who has not been reared in the country and has not enjoyed the many pleasures of sugar making, is without some of the things which help to make the after memories of life most delightful. It is in sugar making time that everything is opening into new life. Spring is getting ready to put on the green that makes May and June the most delightful months of the year. As to this conclusion, some may differ with me, giving the preference to September and October. To me the one speaks of fresh life and budding youth; the other of old age, decay and death. It is in spring, in the language of the Psalmist, that we have "showers that water the earth." And who has not enjoyed these showers? It is at this time that the drops of water falling into the pools and rivulets make air globules like halves of soap bubbles, and our shadows are reflected mirror-like in the water. It is at this time of the year that the drying leaves rustle as we walk through

them gathering the sugar water. And how delightful the memory of the neighborhood parties at night about the furnace of the sugar camp from which the stirring off was being made for the wax pulling that was to follow. It is in sugar making time that we as children go hunting for that delicious bulbous edible, the turkey pea or pepper and salt. Among the plants it is the pretty little harbinger of spring. It is in sugar making time that the tufted titmouse is in full song. It is then, as Mr. Basket tells us, that his song "is that sugary sap-rising call to 'Peter-peter-peter' to get out his spiles and water troughs." It is then that their clear, loud whistle of "peto-peto-peto" may be heard at Buzzard's Roost for we have many of them there. It is then,

"When summer's birds are bringing
Their clear concerted singing,
Singing gladder, gladder, gladder in their glees;
When finches and the thrushes
Make vocal all the bushes,
And the lark his note of morning welcome frees—
I hear no meter sweeter
Than 'Peter—Peter—Peter,'
That the Peter-bird is singing in the trees."

These delightful birds are very inquisitive and sociable. They rather enjoy the company of man. At Somerleaze an elm tree stands so close to the house that the limbs almost overhang the back porch. Here I have frequently sat in the afternoon and whistled to the titmice to come. They would be over in our orchard, and hearing my whistle, would come in answer to it, getting as near to me as the closest limbs would permit, and look inquiringly at me, as much as to say, "Here we are, what do you want with us?" And then I wished that I could tell them that I wanted their companionship. I sometimes feel that it is a hardship that all animal life cannot communicate with each other. Would there not be less wrong inflicted then? Would a man kill a bird if it could say, "Sir, will you not spare my life? Have I done you any wrong? Have I not been your friend?"



BROWN CREEPER.
(*Certhia familiaris americana*)
Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO.

CHAPTER L.

December 4—December 10.

THE BROWN CREEPER.

Order—Passeres.

Suborder—Oscines.

Family—Certhidæ.

Genus—*Certhia*.

Species—*Certhia familiaris americana*.

Length—5.00 to 5.75; wing, 2.40 to 2.70; tail, 2.30 to 2.90.

Migration—North, April; south, September.

"The little brown creeper climbs up the tree,
Not stopping to talk with the chickadee-dee,
And clinging on with his dear little feet,
He looks inexpressibly cunning and sweet.
We listen with joy to the cheerful note
Coming from such a tiny throat."

The family Certhidæ, composed of the creepers, has in it about twelve species. Of these the brown creeper is the only one found in America. It is an expert tree climber and partial to the tree tops. In appearance the sexes are alike. Its bill is long, slender, curved, compressed at the sides, and acute at the tip; the wings are moderate and rounded; the tail is long and graduated with the ends of the feathers slightly curved and, like that of the woodpecker, is used for a support, as is shown by the illustration; the toes are long and slender of the body is of a mottled color of brown and white, and buff of the body is of a mottled color of brown and white and buff the tail is a light buff, and the under parts are white without any marks.

The brown creeper is an active, nervous little creature, which flits rapidly from one tree to another, generally alight-

ing upon the trunk near the base, then running spirally upward, and after a hurried inspection of it for its food, wings its way to another. It never backs down the bole of a tree as woodpeckers do, nor does it work with its head down as the nuthatches do. It is a difficult bird to find because of the fact that the color of its back closely resembles the bark of the tree, and when about to be discovered it crouches closely to it. It is a fine example of protective coloration. It is very hardy and lives sumptuously through the winter. One who is very fond of the little creatures has said: "If the swallows were to visit us at this time they would undoubtedly perish, for the air in winter is almost clear of insect life; but the little creeper can live in ease when the sun is at Capricorn, just because he can climb so dexterously, for the bark of trees abounds with insects, and more particularly their eggs and larvae, which lie torpid until called into life by the genial presence of the vernal sun."

Its habits are interestingly described by Mr. Garret Newkirk in *Bird Lore* in his poem, "The Little Brown Creeper." He makes it say:

"Although I am a bird, I give you my word
That seldom you'll know me to fly;
For I have a notion about locomotion,
The little Brown Creeper am I,
Dear little Brown Creeper am I.

"Beginning below, I search as I go
The trunk and the limbs of a tree,
For a fly or a slug, a beetle or a bug;
They're better than candy for me,
Far better than candy for me.

"When people are nigh I'm apt to be shy,
And say to myself, 'I will hide,'
Continue my creeping, but carefully keeping
Away on the opposite side,
Well around on the opposite side.

"Yet sometimes I peak while I play hide and seek,
If you're nice, I shall wish to see you;
I'll make a faint sound and come quite around
And creep like a mouse in full view
Very much like a mouse in full view."

The brown creeper is a migrant whose range extends from the Gulf States north into Canada. It goes north in April and returns in September. It breeds in the northern part of its range, and the breeding season begins about the middle of May. Its nest is built in crevices where the bark has started from a dead tree and is built of felted material, soft feathers, moss, twigs and spider cocoons. The eggs, six to eight in number, are of a yellowish white color, with irregular purplish dots, especially at the larger end.

In the winter they come into our towns and cities, and may be seen doing their good work on the boles of the trees. I have seen them quite frequently in my native city and with interest have watched them making their spiral ascent of the trees in our parks. In the spring, before departing north to breed, they often sing their little song to us, which, however, we are lucky to hear. Of their song at breeding time, Mr. William Brewster says: "Their notes are varied and warbling, and somewhat confused; some of them are loud, powerful and unsurpassingly sweet, others are more feeble and plaintive. Their song usually ends with their accustomed cry, which may be represented by 'cree-cree-cre-ep.'"

Their principal food consists of ants, larvae and small insects and particularly those species which affect the trunks of our trees. Among other things they have been found to have eaten beetles, bugs, spiders, pine seeds, fungi and particles of lichens.

THE
OF
THE



From col. F. M. Woodruff.

BOB-WHITE.
 $\frac{2}{3}$ Life-size.

Copyrighted by
Nature Study Pub. Co., 1898, Chicago.

CHAPTER LI.

December 11—December 17.

THE BOB WHITE.

Order—Gallinæ.

Suborder—Phasiani.

Family—Tetraonidæ.

Subfamily—Odontophorinæ.

Genus—Colinus.

Species—Colinus virginianus.

Length—9.50 to 10.75; wing, 4.30 to 4.70; tail, 2.40 to 2.90.

Permanent resident.

"I see him on the zig zag rail,
The cheery little fellow!
While purple leaves are hurling down,
And scarlet brown and yellow.
I hear him when the air is full
Of snow-down of the thistle;
All in his speckled jacket trim,
'Bob White! Bob White!' is his whistle."

The family Tetraonidæ has in it about two hundred species and is composed of the grouse, pheasants, partridges, quails and Bob-whites. It is subdivided into three sub-families as follows: (1) *Perdicinæ*, containing the true quails and partridges of the old world; (2) *Odontophorinæ*, the Bob-whites and the so-called "quails" and "partridges" of the new world; and (3) *Tetraonidæ*, the grouse, with representatives in the northern parts of both hemispheres. According to Chapman, "All the tetraonidæ are ground-inhabiting birds, and their plumage of blended browns, buffs and grays brings them into such close harmony with their surroundings that,

as a rule, we are unaware of the presence of one of these birds until, with a whirring of short, stiff rounded wings it springs from the ground at our feet. It is this habit of 'lying close,' as sportsmen term it, in connection with their excellent flesh, which makes the members of this family the favorites of the hunter and epicure and only the most stringent protective measures will prevent their extinction as their haunts become settled."

The name Bob-white is derived from the familiar utterance of the bird. In the north and west it is called the quail and in the south the partridge. The name quail properly belongs to a smaller migratory bird of a different genus, found in the old world, the quail of the Bible story; while partridge in New England universally applies to the ruffed-grouse, is strictly the name of another old world genus, though also used to designate the group to which Bob-whites, quail, partridges and other closely related birds belong.

The bill of the adult Bob-white is stout, hen-like and black; eye, dark hazel; chin, throat, forehead and line through the eyes and along the sides of the neck, white; black band across the top of the head, extending backward on the sides, and from the bill below the eyes, crossing on the lower part of the throat; back, scapulars and lesser coverts, red brown, intermixed with ash and sprinkled with black; wings plain dusky; tail ash, sprinkled with reddish brown; lower parts of the breast and belly pale yellowish white; legs very pale ash. The color of the adult female is duller, black band on the breast indistinct, and the throat is buff instead of white.

The range of the Bob-whites extends north through the eastern United States and southern Ontario, Canada; west to eastern Minnesota, Nebraska, Kansas, Indian Territory and eastern Texas; and south to Georgia, Alabama and the other Gulf States. It is one of the most widely distributed of our game birds. It is found everywhere, more or less abundantly in suitable places within the United States, east of the Missouri and Mississippi Rivers, except in Florida, where it is replaced by the Florida Bob-white. It is not a migrant. Mr. Wells W. Cooke says that "Many a cardinal, Carolina wren and Bob-white rounds out its whole contented life within ten

miles of its birthplace." While this is true, it is also true that in the autumn Bob-whites seem possessed with a desire to migrate. They become restless and bewildered. Hunters say they are crazy. At such times I have known them to come into the city. In the autumn of 1903 I whistled to one that was just across the street from Elmwood and it answered my call and came to within a few feet of where I was standing on our front lawn; and then I remembered the lines of Henry T. Stanton:

"Ah, I hear it, and I see it
Sitting on the rail.
Is it real, can it be it,
My old friend the quail?
Out of season, out of cover,
Turned a migrant, turned a rover,
Sitting boldly in my sight,
Calling: 'White—Bob White!
Bob-Bob White—
Bob White?"

The mating season commences in April and nidification begins usually about the first of May. The nest is always placed upon the ground and is a very simple affair. It may be found alongside a patch of overhanging weeds, a tall bunch of grass, under a small bush or in a briar patch, by the side of the fence. One at Buzzard's Roost was built in the grass, not more than ten feet from the road where we were constantly passing by, and so that we could see the sitting quail and she could see us. The female builds the nest, and in building excavates a saucer-shaped cavity in the ground and slightly lines it with grasses and vegetable trash. Usually the nest is open, but sometimes it is roughly arched. In it are laid from ten to twenty dull white ovate eggs, often partially stained a buffy yellow by contact with the grass on which they lie. Fifteen may be considered a fair average, but as many as thirty-seven eggs have been found in a nest.

It is well known that some Bob-whites are polygamous and it is believed by some that where large clutches of eggs are found in a nest they are the product of two or more females. In his *Life and Immortality*, Mr. Thomas G. Gentry

says: "Eighteen days are required for their hatching. Where the father is not fortunate enough to possess a harem a part of the work devolves upon him, while the mother seeks food and recreation; but where there are several females, the work is divided amicably among them, each sitting about half a day at a stretch, then calling her relief with a low note, if there be only two, the male taking no part in the labor of incubation whatever. Should the family be larger, two females will sit side by side on the eggs, there being too many for one breast to cover. Meantime the husband remains close by, chirping encouragement in a low tone, and betime making the field vocal with his loud clear whistle." I find that there is a diversity of statement among authors upon this subject. Major Bendire says: "Incubation lasts about twenty-four days, in which duty the male is said to assist at times, at least." Mr. Dugmore says: "Incubation occupies twenty-four days, both birds assisting." Miss Merriman says: "The bird's domestic life is particularly interesting from the part the male plays in the family, helping to build the nest, feeding his mate on the eggs, and in case of death brooding in her place." Mr. Butler says: "The female does the sitting and cares for the family. Occasionally, when she has been killed, the male has been known to assume the task of sitting and fulfilling the duties of the mate." It will be seen that it is hard to reconcile these records. Personally, I have never seen the male taking any part in the nest building and incubation, but I have seen him taking care of the young birds. In the summer of 1899, while tramping in the country, I came close upon a covey of them before they noticed me. As quick as thought the old bird, a male, gave the alarm and just as quick the little ones were gone in every direction, and the old one was fluttering away in an opposite direction. I understood his trick, and paid no attention to him, but tried to find one of the little ones. He observed what I was doing and flew into a tree near by and kept up his warning notes to the hidden ones. They heeded his warnings and eluded my search although the grass in which they were hidden was very short.

The Bob-whites are ever on the alert for the approach of an enemy—and they have many—man, perhaps being the

worst. As a rule, they do not depend upon flight as a protection from danger, but rather upon their protective coloring. If, however, flight becomes necessary, they suddenly spring into the air with a whirr, and their short and strongly constructed wings enable them to quickly reach their highest speed. They do not fly in a bunch, but scatter, and if a forest is near by they will fly into it. When danger has passed their leader calls them together again.

Generally they do not walk but fly to their roost with a low, soft, noiseless flight, so that their enemies may not hear or track them. When the roost is reached, their manner of adjusting themselves for the night is unique. They arrange themselves in a circle, with their tails inward, so that they touch each other, and with heads outward every way for watching and for easy escape, if discovered by an enemy. Think of having to live such a life!

"The close covey vexed with various woes,
While sad they sit their anxious mother round,
With dismal shade the closing net descends,
Or by the sudden gun they flutter, fall,
And vile with blood is stained their freckled down."

The young leave the nest just as soon as they are out of the shell, and at once commence their good work of destroying noxious seeds and insects, and each of them destroys an enormous amount of these. How cunning the little fellows are! The old birds remain with them and lead them to where the most food is to be obtained, and are ever on the watch for an enemy.

"Under the alders, along the brooks,
Under the hemlocks, along the hills,
Spreading their plumage with furtive looks,
Daintily pecking the leaves at will;
Whirr! and they flit from the startled sight,
And the forest is silent, the air is still."

The Department of Agriculture at Washington has had a careful study made of the economic value of the Bob-white. In his exhaustive report to the Department, Dr. Sylvester D. Judd says, "The results obtained may be thus summed up. The Bob-white is probably the most useful abundant species

on the farm. It is one of the most nearly omniverous birds, consuming large quantities of weed seeds, and destroying many of the worst insect pests with which the farmer has to contend. It does not injure grain, fruit, or any other crop. * * * A careful computation of the total amount of weed seed the Bob-white is capable of destroying is surprising in the magnitude of the result. In the State of Virginia it is safe to assume that from September 1 to April 30, the season when the largest proportion of weed seed is consumed by birds, there are four Bob-whites to the square mile, or 169,800 in the entire State. The crop of each of these birds will hold half an ounce of seed, and as at each of the two daily meals weed seeds constitute at least half the contents of the crop, or a quarter of an ounce, a half ounce daily is certainly consumed by each bird. On this very conservative basis the total consumption of weed seeds by Bob-whites from September 1 to April 30 in Virginia amounts to 573 tons. * * * Furthermore, the proportion of injurious insects habitually eaten by the Bob-white makes its services as a destroyer of insects more valuable than those of many birds whose percentage of insect food, though greater, includes a smaller proportion of injurious species. Conspicuous among the pests which the Bob-white destroys are the potato beetle, the twelve spotted cucumber beetle, the bean-leaf beetle, the squash lady-bird, wire worms and their beetles, May-beetles, such weevils as the corn-hill bug, the imbricated snout-beetle, the clover leaf weevil, and the Mexican cotton-ball weevil, the striped garden caterpillar, the army worm, the cotton worm, the boll worm, various species of cut worms, the corn-louse ant, the red-legged grasshopper, the Rocky Mountain locust, and the chinch bug." And yet, notwithstanding this splendid record of the usefulness of the Bob-whites no birds are more persistently persecuted and killed than are they.

"The thundering guns are heard on every side,
The wounded coveys, reeling, scatter wide;
The feathered field mates, bound by nature's tie,
See mothers, children in one carnage lie."

A large, stylized illustration of a flock of birds in flight, rendered in a light, sketchy style against a dark background. The birds are scattered across the upper half of the page, with some appearing as simple outlines and others as more detailed silhouettes. The overall composition is minimalist and artistic.



FROM COL. F. M. WOODRUFF.

JUNCO.
Life-size.

COPYRIGHT 1900, BY A. W. MUMFORD, CHICAGO.

CHAPTER LII.

December 17—December 23.

THE JUNCO.

Order—Passeres.

Suborder—Oscines.

Family—Fringillidæ.

Genus—Junco.

Species—Junco hyemalis.

Length—6.00 to 7.00; wing, 3.15 to 3.65; tail, 3.00 to 3.29.

Migration—North, April 1-30; south, September 20-October 20.

"On twinkling wings they eddy past
At home amid the drifting,
Or seek the hills and weedy fields
Where fast the snow is sifting.
Their coats are dappled white and brown—
Like fields in winter weather,
But, on the azure sky they float
Like snowflakes knit together."

The juncos belong to the family Fringillidæ and are full cousins of the sparrow. Fifteen species, having a habitation in North America, have been listed. Most of them are birds of the far northern and northwestern parts of the continent. The slate-colored junco, junco hyemalis, sometimes called the slate-colored snowbird and snowbird, is a migrant whose range extends from the Gulf States northward to Labrador, and western shores of Hudson Bay, and through the interior to the Arctic coast and westward to the valleys of the Yukon and Kowak rivers in Alaska. The Rocky Mountains seem to be its western limit. When it comes south its presence is usually an-

nounced by a sharp "tchip," followed by a rapid chipping as it flies.

The bill of the adult male junco is pinkish or lilaceous white; the iris dark reddish brown or claret blue; the head, neck, chest, upper breast, sides, flanks and upper parts are a plain slate-color; darkest on the head, which is sometimes almost black and marked like a cowl; six middle tail feathers, slate-blackish, edged with slate-grayish; two outermost tail feathers white, the third white and dusky; the lower breast, abdomen, anal region and under tail coverts white; tarsi light brownish, toes usually darker. The adult female is similar to the male, except that the slate-color is lighter. Mr. Parkhurst suggestively describes the bird as "Leaden skies above; snow below."

"When snow, like silence visible,
Hath hushed the summer bird,
Thy voice, a never frozen rill
Of melody, is heard.
But when from winter's lethargy
The buds begin to blow,
Thy voice is mute, and suddenly
Thou vanishest like the snow."

In the springtime before leaving us for its home in the far north it has, as Mr. Bicknell describes it, "a crisp call-note, a simple trill, and a faint, whispered warble, usually much broken, but not without sweetness." Some attention is given to mating before the juncos leave us in April. They nest in the mountains of northern Pennsylvania, New York, and New England, and throughout their range, from Minnesota northward. Nest building is begun during the first half of May. They select a variety of places for nesting sites, such as the upturned roots of trees, crevices in banks, under the sides of logs and stumps, a cavity under broken sod, or in the shelter of grass or other vegetation. The nest is made of dry grasses, moss and rootlets, lined with hair or other fine material. Three to five whitish eggs, speckled with reddish brown constitute a set. I am without data and information as to the incubation habits of the junco but surmise that they are much like those of the sparrows of which family it is a member.

The juncos feed almost exclusively upon the seeds of weeds, and this places them among our most useful birds.

"The unknown fields are their preserves,
Where weeds and grasses are seeding;
They know the lure of distant stacks
Where houseless birds are feeding."

In describing the junco, I have said that the two outermost tail-feathers are white and the third white and dusky. The illustration accompanying this chapter shows this to be so. Why is it so? Those who have studied the question—Notably Darwin—tell us that these white feathers and like markings of birds and animals are signal recognition marks by which they know each other while in flight, and no doubt, this is the correct answer to the question. A reason for the answer is that such markings are usually located upon the body in the rear and so that they can be seen only while the bird or animal is in flight. Notably is this so of the flicker, whose white patch is above the tail and so situated that when the bird is not in flight it is covered by the wings. Among the animals the rabbit whose "cotton-tail" is seen only when it is running, is an apt illustration and proof of the theory. Of these markings and like social signs, Mr. Baskett in his *Story of the Birds* says, "Certain birds have a whirring flight when first flushed, and others have purposely designed wing whistles, as in doves and woodcocks. Others incidentally strike their wings together over their backs as they begin to fly. Yet more voluntary is the little 'chit' or back talk of many birds as they feed—accompanied sometimes, as in the snowbirds, by the little flit of the white tail feathers—a sort of 'I-am-with-you' kind of signal in the toil for daily bread."

With us the juncos are very sociable and are found in flocks. In my childhood days many of them came to our wood-yard and were fed with the domestic fowls. I loved them then and I love them now. I am not sure that I would be a real bird lover but for having had their companionship. Fifteen acres of Buzzard's Roost is Fall Creek bottom land, and surrounded with timber which shelters it from the fierce winds of winter. The juncos take advantage of this situation and many

of them are found there every winter. It is good to see them and watch them feeding. I have been out there to-day, February 19, 1905, to see them. The earth is covered deep with snow, but this does not prevent them from finding something to eat. As the gardner and I walked over the bottom I noticed how they and the tree sparrows had shaken the weed seed from the stalks on the snow and then gathered it up. Hundreds of little bird tracks under the weed stalks told that they had been there. The gardner told me that many of them come to the barn at night to take shelter in it and feed with the fowls. This pleased me much and I encouraged him to look after them. They are such cheerful, happy, contented and busy little creatures that I can not help but love them.

"O cheery bird of winter cold,
I bless thy every feather;
Thy voice brings back dear boyhood days
When we were gay together."

THE
MUSEUM
OF
COMPARATIVE
ZOOLOGY



TREE SPARROW.
(*Spizella monticola*).
About Life-size.

CHAPTER LIII.

December 24—December 31.

THE TREE SPARROW.

Order—Passeres.

Suborder—Oscines.

Family—Fringillidæ.

Genus—Spizella.

Species—*Spizella monticola*.

Length—6.00 to 6.50; wing, 2.80 to 3.10; tail, 2.60 to 3.90.

Migration—North, March 10-April 15; south, Oct. 20-Nov. 20.

"Blythe wanderer of the wintry air,
Now here, now everywhere,
Quick drifting to and fro,
A cheerful life devoid of care,
A shadow on the snow."

The tree sparrow is a member of the family Fringillidæ. There are two species of them, namely, the western tree sparrow, *monticola ochracea*, the range of which is western North America east to the Plains, and the tree sparrow, *spizella monticola*, whose range extends north throughout North America, east of the Plains to South Carolina and the Indian Territory to the Arctic Ocean. It winters from North Dakota, Northern Michigan, Ontario and New England, south. They arrive in the Middle West the last of October and the first of November, and leave the last of March and the first of April. They very much resemble the chipping sparrow, but are larger and handsomer, and are never found with us in the summer.

Like the shrikes, the one arrives in the Middle West when the other is departing for the South, and returns to the north when the other is returning from the south. It comes and returns with its cousin, the junco, and frequents sheltered hollows, thickets, and hedgerows near to springs or streams of water. Its breeding range and habits of incubation seem to be imperfectly known. It is known, however, that its breeding range extends from Maine to Labrador, and that its nest is built on or near to the ground, of grass, rootlets and hair, and that from four to five pale green eggs, blotched with various shades of brown, constitute a set.

The adult male and female tree sparrow are alike in appearance, except that the female is the smallest. The upper mandible is black and the lower yellow; iris of eye, brown; upper part of the head, reddish-brown, sometimes slightly skirted with gray; from the nostril over the eye passes a white stripe, fading into pale ash as it extends back; sides of head and neck, ash gray, lighter on the throat; back and primaries, grayish buffy broadly streaked with black; middle and greater wing coverts edged with rufous and tipped with white, forming two conspicuous bars; tail, forked and dusky gray; sides, flank and underneath parts, whitish mixed with pale brownish; legs a brownish clay color; feet black.

Mr. Bicknell says they have two call notes, the customary "chip" and "a low double note, which is uttered mainly while the birds are feeding," and Mr. Chapman says, "they are sociable birds, with apparently the best of dispositions. They are usually found in small companies, each member of which seems to have something to say. Watch them feeding on an old weed stalk left uncovered by the snow. It bends beneath the weight of half a dozen birds, but, far from attempting to rob one another, they keep up a conversational chatter, bespeaking the utmost good fellowship. 'Too-la-it, too-la-it,' each one calls, and I have only to remember this note to bring clearly to mind a bright winter morning with fresh snow crystals sparkling in the sunshine and in the distance a tinkling chorus of tree sparrows at breakfast." I quote this paragraph at length because it seems to me to fit well with a late experience of my own.

Saturday night, February 11, 1905, the thermometer fell to ten degrees below zero and with the sudden change there was a very heavy snow fall. The snow clung to even the smallest twigs of the trees, bending the larger and lower limbs almost to the ground, and the next morning presented one of the most beautiful and weird scenes that I have ever witnessed. It steadily grew colder on Sunday and that night the thermometer fell to seventeen degrees below zero. I was sure that Buzzard's Roost would be wonderfully beautiful that afternoon, and notwithstanding the severe cold, I went out to see it. I did not expect to see many birds, but in this was agreeably surprised. From the interurban car I saw a flock of from two to three hundred crows, and after leaving the car, I had not gone more than an eighth of a mile, until I heard, to my left, a "chipping" noise which I was sure was made by birds. Stepping to the roadside and looking into a garden I discovered a flock of about fifty tree sparrows feeding on the weed seed of old weed stalks that stood above the snow, and keeping up their "conversational chatter" and thus "bespeaking their good fellowship."

When they are with us their food consists almost exclusively of weed seed. Professor Beal has estimated that during the two hundred days they average to remain in the State of Iowa, reckoning ten sparrows to the square mile and one-fourth of an ounce as the daily ration, they destroy one million seven hundred and fifty thousand pounds or eight hundred and seventy-five tons of weed seed. Contemplate, if you will, what this means to the farmers of that State.



[illegible]

•Rice.
}Green Peas.

CHAPTER LIV.

WHY PROTECT THE BIRDS?

Since the birds first gladdened the earth with their morning song and the beauty of their plumage, there have always been those who have loved them and who have done all they could to protect and care for them. But in this busy, hurrying world of ours where the dollar has assumed such abnormal importance, we must be able to give a practical reason for their protection as well as an æsthetic one. For many years birds were ruthlessly murdered for the mere love of the sport and because we did not realize that we were harming ourselves by permitting such acts. But the untiring work of scientists has proved beyond a doubt the great value of the birds, and this is a first and sufficient reason for their protection.

Asa Gray, one of the greatest of American botanists, has said, "Animals depend absolutely upon vegetables for their being. The great object for which the All-wise Creator established the vegetable kingdom is, that plants might stand on the surface of the earth between the mineral and animal creations, and organize portions of the former for the substance of the latter." This statement is but a reiteration of what is recorded in Holy Writ, for there it is said, "And God said, and to every beast of the earth and to every fowl of the air, and to everything that creepeth upon the earth, wherein there is the breath of life, I have given every green herb for meat."

Weed and Dearborn in their most excellent book, *Birds in Their Relation to Man*, say, "A correct idea of the economic role of the feathered tribes may be obtained only by a broader view of nature's methods—a view in which we must ever keep before the mind's eye the fact that the parts of the organic world from normal to man, are linked together in a thousand ways, the net result being that unstable equilibrium commonly called 'the balance of nature.'" In preserving the balance of

nature so that the earth shall yield that vegetation which "shall be meat" for man, three vicious elements must be contended with, namely, (1) the weeds, (2) the insects, and (3) the rodents. The rapidity with which these pests increase, and the damage they are capable of doing, is almost incomprehensible.

It is also recorded that God said, "cursed is the ground for my sake; in sorrow shall thou eat all the days of thy life; thorns also thistles shall it bring forth to thee; and thou shalt eat of the herb of the field; in the sweat of thy face shalt thou eat bread until thou return unto the ground." Since that record was made a great warfare has been waged in this world, between good and evil, and this has been true, not only in the world of morals but also in the vegetable world. By "thorns and thistles," as used in the quotation, thorny and prickly plants alone are not meant, but in a broader sense, all useless and troublesome plants are included. One needs only to count the seeds produced by a single plant of purslane, platan or thistle to be convinced of the prodigious reproductive power of our common weeds. But for the warfare that is being waged against them by man and his allies, the weeds would take exclusive possession of our gardens and fields and we would be without bread. It may be that in that condition, we, like the savage, could subsist upon the wild fruits, and the flesh of wild animals, and be able to clothe ourselves with their skins, but it would be impossible for us to live the lives of civilized beings under such conditions.

While it is true that man shall earn his bread by the sweat of his brow, it is also true that by his labor alone, he cannot have bread to eat. He is a dependent being and without the allies which nature so bountifully supplies to him, he would be utterly powerless in keeping under control its evil and destructive forces. In this work our birds are our most effective allies and helpers, and notably is this true of our seed-eating birds in keeping the weeds under control. This valuable service to man is, in the main, rendered by the bird family Fringillidæ, to which belong the sparrows, finches, buntings, and grosbeaks, and which contains more than one seventh of the North American species of birds. Dr. S. D. Judd has made a careful study of the feeding habits of many of these birds and in a

well prepared report of his observations upon a farm, he says, "The tree sparrows, fox-sparrows, white-throats, song-sparrows, and juncos fairly swarmed during December in the briers of ditches between the cornfields. They came into the open fields to feed upon weed seed, and worked hardest where the smart-weed formed a tangle on low ground. Later in the season the place was carefully examined. In one cornfield near a ditch the smartweed formed a thicket over three feet high, and the ground beneath was literally black with seeds. Examination showed that these seeds had been cracked open and the meat removed. In a rectangular space of eighteen square inches were found eleven hundred and thirty half seeds and only two whole seeds. Even as late as May 13 the birds were still feeding on the seeds of these and other weeds in the fields; in fact, out of a collection of sixteen sparrows, twelve, mainly song, chipping and field sparrows, had been eating old weed seed. A search was made among various weeds, but so thoroughly had the work been done that only half a dozen seeds could be found. The birds had taken practically all the seed that was not covered; in fact, the song-sparrows and several others had scratched up much buried seed." He made an examination of some four thousand stomachs of sparrows of many sorts, collected all over the United States, and in his report of this work he says that "during the colder half of the year the food of these birds consists almost entirely of the seeds of weeds."

In his report Dr. Judd also said: "The problem of weed destruction is perennial in every land where agriculture is practiced. Indeed, so serious is it, that soil culture may be said to be an everlasting war against weeds. * * * Certain garden weeds produce an incredible number of seeds. A single plant of one of these species may mature as many as a hundred thousand seeds in a season, and if unchecked would produce in the spring of the third year ten billion plants. Fortunately certain agents are at work to check this harvest, and perhaps the most efficient among them are the seed-eating birds. * * * Since they attack weeds in the most critical stage of life, the seed period, it follows that their services must be of enormous practical value. The benefits are greatest in the case of hoed crops, since here are found the largest number

of annual weeds, which, of course, are killed by frost and must depend for perpetuation solely upon seeds. The principal weeds which birds prevent from spreading are ragweed, pigeon grass, smartweed, bindweed, crab grass, lamb's-quarters, and pigweed."

After a full discussion of what birds are to be considered as weed destroyers and the good that is accomplished by them, Dr. Judd closes his summary of the subject by saying, "The birds which accomplish the most as weed destroyers are the score or more of native sparrows that flock to the weed patches in early autumn and remain until late in the spring. During cold weather they require an abundance of food to keep their bodies warm, and it is their habit to keep their stomachs and gullets heaping full. Often one of these birds is found to have eaten 300 seeds of pigeon grass or 500 seeds of lamb's-quarters or pigweed. Because of their gregarious and terrestrial habits, they are efficient consumers of seeds of ragweed, pigeon grass, crab grass, bindweed, purslane, smartweed and pigweed. In short, these birds are little weeders whose work is seldom, but always felt."

Reference to the photogravures, "A Lesson in Weed Destruction," from photographs made by my friend, Benjamin W. Douglass, shows better than pen can tell, how effectively the seed-eating birds do their work.

In addition to their great usefulness as weed seed destroyers, the family Fringillidæ do much good in destroying injurious insects. Weed and Dearborn in their summary of the economic value of birds say: "The most striking particulars brought out by a study of their diet are the enormous amounts of weed seed taken during winter and the extent to which these so-called seed-eaters take insect food in spring and summer, especially in the presence of an unusual abundance of edible species. For example, in an orchard infested by canker-worms forty-seven members of this family had eaten ninety-one per cent. of insects and only seven per cent. of seeds, canker worms alone making forty per cent. of the food."

The rapidity with which the insect pests increase and the destructive powers with which they are possessed is

A Lesson in Weed Destruction

by
BENJAMIN W. DOUGLASS



Before



After

A chickweed before and after an attack by the sparrows.

marvelous. Reaumer, in his history of the insects, estimates that one aphid may be the progenitor of not less than 5,904,900,000 during the few weeks of her existence. Theodore Wood, in his book on *Our Insect Enemies*, says: "It may seem a widely and extravagant and unjustifiable statement if we say that but for certain opposing agencies the aphid would overrun the entire world; that it would leave scarcely a green leaf upon the earth, and that it would cause such terrible devastation that all terrestrial life would wholly disappear, and the globe become one vast desert incapable of supporting animation, and utterly without living beings of any kind. Still more impossible would it appear were we to state that this ruin and devastation would be the outcome, not of many centuries of gradual increase, but of only a few short months. Incredible as the assertion may seem, however, such results are no more than must logically follow if the aphid should be allowed to remain perfectly unmolested during the period of but a single year." And this is only one of these destructive insect pests with which we must contend.

Indeed, there are pestiferous and destructive insect pests for every condition, place and plant about us. For instance, in the air, by day, we have flies, butterflies, wasps, moths and winged ants, and at night moths, mosquitoes, bugs and beetles. Upon our shrubs and small fruits we have slugs, leaf hoppers, flea beetles, rose chafers, climbing cutworms and caterpillars. In our gardens we have cutworms, cabbage worms, root maggots, cucumber, pea and bean weevils and squash bugs. In our orchards we have borers, codling moths, bark lice, plant lice, cankerworms and leaf caterpillars. In our meadows we have grasshoppers, cut worms, army worms, crane flies, white grubs and root borers. In our corn and wheat fields, we have wire worms, ball worms, root worms, Hessian flies, ants and chinch bugs. In our forests we have plant lice, bark lice, trunk borers and leaf caterpillars. In our marshes, ponds and streams, we have water beetles, water bugs, mosquitoes and May flies.

Professor C. R. Marlatt, Assistant Entomologist in charge of the experimental field work of the United States Department of Agriculture, has prepared a report for the Department,

in which he sets out at great length facts to support the assertion that the annual loss on farm products in the United States occasioned by the destructive insects aggregates \$700,000,000. "In no other country in the world," he says, "do insects impose a heavier tax on the farm products. The losses, it is averred, resulting from the depredations of insects on all the plant products of the soil, both in their growing and in their stored state, exceed the entire expenditures of the national government, including the pension roll and the maintenance of the army and navy." This is a startling and appalling statement, and forces the inquiry, what can we do to prevent this wholesale destruction of that which is essential to our very existence: The first answer of those who have given serious thought to the matter is the protection of our insectivorous birds. And why?

We have already seen that these insect pests are found everywhere doing their destructive work. It is also true that we have the birds everywhere to hold these insect pests in check and destroy them. As Mr. Frank M. Chapman, who perhaps is our most distinguished living ornithologist, has well said: "In the air, swallows and swifts are coursing to and fro, ever in pursuit of the insects which constitute their sole food. When they retire, the night-hawks and whip-poor-wills take up the chase, catching moths and other nocturnal insects which would escape day-flying birds. The flycatchers lie in wait, darting from ambush at passing prey, and with a suggestive click of the bill returning to their post. The warblers, light, active creatures, flutter about the terminal foliage, and with almost the skill of a hummingbird, peck insects from leaf or blossom. The vireos patiently explore the under sides of leaves and odd nooks and corners to see that no skulker escapes. The woodpeckers, nuthatches and creepers attend to the tree trunks and limbs, examining carefully each inch of bark for insects, eggs and larvae, or excavating for the ants and borers they hear at work within. On the ground the hunt is continued by the thrushes, sparrows, and other birds, who feed upon the innumerable forms of terrestrial insects. Few places in which insects exist are neglected; even some species which pass their earlier stages or entire lives in the water are

preyed upon by aquatic birds." In the language of another, the birds "have been likened to a great standing army which may be concentrated at short notice upon any locality where there is an outbreak of these pests."

The third class of destructive pests to be considered are the rodents. These belong to the large order of animals having two large incisor teeth in each jaw, separated from the molar teeth by an empty space and are gnawing animals. Rats, mice, woodchucks, rabbits, muskrats and beavers belong to this order. Every well informed person knows how rapidly these animals increase and how destructive they are to vegetation. In Australia the progeny of a few pairs of imported rabbits have overrun the country, its vegetation has been threatened with utter destruction and millions of dollars have been spent in an effort to get rid of the pest, and the warfare yet goes on. In this country, if not kept in check, they are among our most destructive pests and especially is this so in our vineyards and orchards where they do so much damage in girdling our vines and trees. Rats and mice are equally destructive. Owls, hawks and shrikes are our most effective aids in destroying these pests and keeping them in check.

It was Gilbert White of Selborne, the English clergyman and naturalist of the eighteenth century, who directed attention to the fact that the owls destroy many rodents. Much has been said about hunting with a camera and studying the birds with a field glass. Gilbert White studied them with sympathetic eyes as he tramped through his parish, "an assemblage of hill, dale, woodlands, heather and water." Near by his parish house stood a tree with a cavity, in which lived a pair of owls. He noticed a large quantity of pellets at the root of the tree which had been regurgitated by the owls. He examined them and discovered that the owls had destroyed great quantities of mice and other rodents. Since then his observations have been confirmed by many naturalists. In the city of Washington two hundred pellets were taken from beneath the nest of a barn owl and examined and found to contain four hundred and fifty-four skulls, of which two hundred and twenty-five were meadow mice, two pine mice, one hundred and seventy-nine house mice, twenty rats, six jumping

mice, twenty shrews, one star nosed mole, and one English sparrow. In the Department of Agriculture at Washington, forty-nine stomachs of the red-legged hawk were examined and it was found that forty of them contained mice, and five of them contained such small rodents as rabbits, gophers, weasels and shrews. In eighty-eight stomachs of the logger-head shrike, only seven birds were found, and it was ascertained that mice constituted fifty per cent. of their food. In 1885 the State of Pennsylvania passed what was called the "Scalp Act," offering a bounty for the scalps of hawks and owls. The United States Department of Agriculture has estimated that the passage of that act resulted in killing over one hundred thousand of these birds and that by their slaughter, the state sustained a loss of near four million dollars in one year and a half.

Prof. Weed says, "After many years of study of the relations of birds to agriculture, I am convinced that the birds are a most potent factor in making crop production possible, and without them, we should be overrun with pests—vertebrate and invertebrate—to an extent of which we have no conception." Michelet, the great French historian and naturalist in his "Insect Life" said, "If all the birds of the world were destroyed, it would be uninhabitable for men in nine years." Do not all of these facts give us good sound practical reasons for protecting the birds?

Birds are unique in their structure. They are the only creatures that are covered with feathers. The structure of these feathers is very wonderful. Notice how light they are, yet how strong. How they are adapted to retaining the heat of the body, and aiding in the flight of the bird. Examine the vanes on each side of the shaft and see how wonderfully the thin laminae are interlocked. With all our ingenuity we can make nothing like them. We can not counterfeit them. The Indians of the Shasta Mountains have a beautiful little legend about the origin of birds. The Great Spirit, they say, in looking upon the bright hued leaves of autumn thought them too beautiful to die. So he endowed them with new life and gave to them wings and song:

"Thus from the red stained oak the robin came,
The cardinal, the maple's splendor bore;
The yellow bird the willow's faded gold
In living plumage bore."

This is the reason, so the Indians say, that the birds are so closely allied to the trees and return each year to build their nests beneath their friendly shelter. And for this reason I love the birds and would protect them.

No other creatures that God has made, are so gifted with song, as are the birds. As Mr. Chapman says, "Birds' songs are the most eloquent of nature's voices; the gay carol of the grosbeak in the morning, the dreamy midday call of the peewee, the vesper hymn of the thrush, the clanging of the geese in springtime, the farewell of the blue birds in the fall—how clearly each one expresses the sentiment of the hour or season." I have heard many great singers, but the songs of none of them has left in my memory a recollection of such sweetness as that of a robin I heard one evening in the springtime when I, weary, was returning home from my office. It was perched on the topmost limb of a maple tree, and there in the rain with uplifted head, it was pouring out its soul in song to God, its Creator.

"What bird is that? Its song is good,
And eager eyes
Go peering through the dusky wood
In glad surprise.
Then late at night, when by his fire
The traveller sits
Watching the flames go brighter, higher,
The sweet song flits
By snatches through his weary brain
To help him rest."

Then why should we not do all we can to preserve them?

We have seen that their services to us are invaluable, that without them our storehouses would be empty and we know that they are the most beautiful creatures in the world. They are beautiful in their symmetrical forms; in their varied colors; in their flight and, as we have seen, in their song. A study of and association with them develops a love for the beautiful and inspires one to a higher life. And this brings me to the

last, but not the least reason why I love the birds and why I would protect them, and that is, that God first cared for them and loved them.

"I am only a tiny sparrow,
A bird of low degree;
My life is of little value,
But the dear Lord cares for me.

"I have no barn or store house,
I neither sow nor reap;
God gives me a sparrow's portion
But never a seed to keep.

"I know there are many sparrows,
All over the world are found,
But our heavenly Father knoweth
When one of us falls to the ground.

"Tho' small, we are never forgotten,
Tho' weak, we are never afraid;
For we know the dear Lord keepeth
The life of the creatures he made.

"I fly through the thickest forest,
I light on many a spray;
I have no chart or compass,
But I never lose my way.

"And I fold my wings at twilight,
Wherever I happen to be,
For the Father is always watching,
And no harm will come to me.

"I am only a little sparrow,
A bird of low degree,
But I know the Father loves me;
Have you less faith than we?"

CHAPTER LV.

HOW TO HAVE THE BIRDS.

The Indiana Audubon Society was organized April 26, 1898. I am proud of the fact that I was one of its charter members. Its good work for the birds has been notable. At that meeting I read the following paper, under the title, "The Preservation of Natural Forest Areas: Their Influence on Birds." I said: "It requires no argument to prove that the preservation of forest areas is essential to the well-being and preservation of our birds. It is recorded that Noah "sent forth a dove from him, to see if the waters were abated from off the face of the ground; but the dove found no rest for the soles of her feet. And again he sent forth the dove out of the ark, and the dove came in to him in the evening, and lo, in her mouth was an olive leaf plucked off." Since the making of this record, the two—trees and birds—have been inseparably connected, and the preservation and well being of the one is essential to that of the other. The forests furnish shelter, food and nestings for the birds; and the birds distribute seeds of the trees and destroy those things which are so destructive of them.

"In the Atlantic Monthly for August, 1897, Mr. John Muir, the lover of forests, and the agitator of their preservation, says: 'The forests of America, however slighted by man, must have been a great delight to God; for they were the best He ever planted. The whole continent was a garden, and from the beginning it seemed to be favored above all the other wild parks and gardens of the globe. So they appeared centuries ago when they were rejoicing in wildness. The Indians with stone axes could do them no more harm than could gnawing beavers and browsing moose. Even the

last, but not the least reason why I love the birds and why I would protect them, and that is, that God first cared for them and loved them.

"I am only a tiny sparrow,
A bird of low degree;
My life is of little value,
But the dear Lord cares for me.

"I have no barn or store house,
I neither sow nor reap;
God gives me a sparrow's portion
But never a seed to keep.

"I know there are many sparrows,
All over the world are found,
But our heavenly Father knoweth
When one of us falls to the ground.

"Tho' small, we are never forgotten,
Tho' weak, we are never afraid;
For we know the dear Lord keepeth
The life of the creatures he made.

"I fly through the thickest forest,
I light on many a spray;
I have no chart or compass,
But I never lose my way.

"And I fold my wings at twilight,
Wherever I happen to be,
For the Father is always watching,
And no harm will come to me.

"I am only a little sparrow,
A bird of low degree,
But I know the Father loves me;
Have you less faith than we?"

CHAPTER LV.

HOW TO HAVE THE BIRDS.

The Indiana Audubon Society was organized April 26, 1898. I am proud of the fact that I was one of its charter members. Its good work for the birds has been notable. At that meeting I read the following paper, under the title, "The Preservation of Natural Forest Areas: Their Influence on Birds." I said: "It requires no argument to prove that the preservation of forest areas is essential to the well-being and preservation of our birds. It is recorded that Noah "sent forth a dove from him, to see if the waters were abated from off the face of the ground; but the dove found no rest for the soles of her feet. And again he sent forth the dove out of the ark, and the dove came in to him in the evening, and lo, in her mouth was an olive leaf plucked off." Since the making of this record, the two—trees and birds—have been inseparably connected, and the preservation and well being of the one is essential to that of the other. The forests furnish shelter, food and nestings for the birds; and the birds distribute seeds of the trees and destroy those things which are so destructive of them.

"In the Atlantic Monthly for August, 1897, Mr. John Muir, the lover of forests, and the agitator of their preservation, says: 'The forests of America, however slighted by man, must have been a great delight to God; for they were the best He ever planted. The whole continent was a garden, and from the beginning it seemed to be favored above all the other wild parks and gardens of the globe. So they appeared centuries ago when they were rejoicing in wildness. The Indians with stone axes could do them no more harm than could gnawing beavers and browsing moose. Even the

fires of the Indians, and the fierce shattering of the lightning, seemed to work together only for good in clearing spots here and there for smooth garden prairies, and openings for the flowers seeking light. But when the steel axe of the white man rang out in the startled air their doom was sealed. Every tree heard the bodeful sound, and pillars of smoke gave sign in the sky.'

"This, indeed, is a vivid picture of the situation then; and behold, what it is now! A continent in a great measure denuded of its forests, with all the direful results that have followed. One of these, and not the least of them, is the extinction of many species of birds and the decimating of the remainder; so much so, that they who have the future productiveness and welfare of our country at heart have become alarmed, and are inquiring what is to be done—what is the remedy?

"How to solve the problem, what is best for forest preservation and restoration, has been very puzzling and has been worked at in different ways in different countries. To this end laws have been passed and different means have been adopted to diffuse a knowledge of them and create a public sentiment in favor of them. Russia refuses to part with its ownership of its forests. France has spent millions in planting and making the planting of denuded areas possible; Russia has passed laws preventing further clearing of forests without a license from the government, and Switzerland has a Federal Forest Law with a school of forestry established. In Europe there are more than a dozen of these schools. Notwithstanding all this, 'Still,' as Mr. Pinchot says, 'America has her own problem, and must solve it in her own way.'

"Until a comparatively recent date, nothing in this regard in a practical way has been done. While it is true that the United States has established forest reserves in the far West, embracing about 40,000,000 acres of land, and has enacted laws for their government, and that the United States Department of Agriculture has been giving much attention to the subject of forestry, yet as to this subject the results are very meager.

"On the recommendation of Governor Black of the State

of New York, the Legislature of that State has just passed a bill establishing a college of forestry at Cornell University and placed in its hands for management 30,000 acres of timber lands in the Adirondack Mountains. The faculty of the college is to consist of a professor, two instructors, a forest manager and such rangers and superintendents as may be required.

"More is due to the Hon. J. Sterling Morton than any other man in the United States for creating a public sentiment in favor of the protection of our forests and the encouragement of tree planting. It was the happy thought of this pioneer settler on the treeless plains of Nebraska, who knew and felt the value of trees about home, as well as their importance for the many uses of life, to enlist his neighbors and fellow-settlers throughout the State, by common impulse, growing out of common wants and feelings, in the work of tree planting on one and the same day. It was he who thought out the plan of popularizing arboriculture and originated the term or phrase 'Arbor Day,' and who, January 4, 1872, wrote, submitted and advocated the resolution before the Nebraska State Board of Agriculture which established that day as an anniversary. In an address delivered April 22, 1887, at the State University of Nebraska, Mr. Morton truthfully said: 'It has become the scholaristic festival of our times, common schools, colleges and universities have taken its practical observance under their own special and intelligent direction. The zeal of youth and the cultured, popularize it. That which should survive in America must harmonize with education and refinement. Whatsoever the schools, the teachers and the pupils shall foster and encourage, shall live and flourish, mentally and morally, forever. Students, scholars and philosophers have ever been associated with trees and their conservation.'

"The Hon. Charles R. Skinner, Superintendent of schools in the State of New York, says: 'There is a practical as well as a sentimental side to Arbor Day. It has its inception in a commendable movement looking to the protection of our forest trees, and what may be called the making of new forests on the plains of the West. The sentimental feature attached to

its observance has been in the development of a love for Nature and her wonderful works, and the encouragement to the delightful study of trees, plants, flowers and birds. There is no doubt that in hundreds of thousands of the children of our country there has been awakened a deep interest in the attractive study of how plants grow, of the use and abuse of trees, and of the relation which birds and flowers bear to the problem of Nature and to human happiness.'

"Indiana is noted, perhaps, more for the excellence of her school system and schools than any other thing. The pre-eminent standing of these has been brought about by an evolution, ranging through three quarters of a century. Fewer than half a dozen of the primitive log school-houses are now standing. The original plan embodied the idea of a center of higher learning in each county, and for that purpose county seminaries were built. These have disappeared with the log school-houses. We now are upon the threshold of centers of higher learning in each township, and this is well. Our most excellent State Superintendent of Public Instruction, as I understand it, advocates the abolition of many of the country schools, the building of larger school-houses and carrying the children to them in public conveyances. This means an opportunity for better buildings, better teachers, better grading of the pupils, better facilities for teaching and better scholarship. The plan ought to have the hearty support of every well wishing citizen of the State.

"In a notable address delivered lately by our progressive Governor in the State of Illinois, he advocated the teaching of agriculture and horticulture in our common schools. And why not? There are nearly 8,000 school gardens in Austria. In France there are nearly 30,000 of them, and the minister of public instruction has resolved that no one shall be appointed master of an elementary school unless he can give practical instruction in the culture of mother earth. In 1871, 22,000 children were receiving instruction in horticulture and tree planting in Sweden, and each of more than 2,000 schools had for cultivation from one to twelve acres of ground. Why should we be behind the Old World in caring for our schools?

"It is in the Middle West that the greatest destruction of the primitive forest has taken place. In *Forest and Garden*, Volume 8, page 101, is a very interesting article upon the forests of the Wabash valley, and in which the thought of Mr. Muir is verified, that is, that they were of the finest of the world. Today Indiana is almost an open, treeless prairie. In but few places are there any primitive forests to be found. Nor is there much that can be done by the State in regard to preservation for the reason that there are no forest lands owned by the State to set apart for that purpose. What, then, is there that can be done?

"In my judgment the State of New York has made a wrong beginning in solving the problem, and that the work ought to begin with our common schools. Why may not every school-house ground be made an arboretum and ornithological garden, where the pupils may have under their eyes continually specimens of all the trees and birds to be found in our State, and where agriculture, horticulture and gardening may be taught?

"My thought is, that there ought to be at least one graded or finishing school in each township in this State; that it ought to be located on from twenty to forty acres of land to be owned by the township for school purposes; that, when possible, forest lands should be purchased for this purpose; that not less than one-half of each tract purchased ought to be preserved as a forest, and if not a forest, it ought to be planted in forest trees; and that the other or remaining one-half ought to be used in teaching agriculture, horticulture and gardening. By this means, at least twenty thousand acres of land would be dedicated to these purposes; we would have all the desirable advantages to be obtained by the scheme of our excellent Superintendent, the opportunity to carry into effect the good suggestion of our progressive Governor, our country schools made equal to our city schools, and there would be no reason why the children of our farmers should leave their homes to obtain a higher and better education. The plan I have suggested would be an ideal one for the birds, for it is true that most of them love forest areas better than they do large tracts of dense woodland.

"In the Arnold Arboretum, in the vicinity of Boston, in the summer of 1895, there were found fifty summer and sixteen winter species of birds in large numbers, besides many other species that passed through during spring and autumn. Mr. Morris Gibbs, of Kalamazoo, an authority on birds, says: "Still, a country about two-thirds cleared and well peopled is sure to embrace more species of birds than is one with its trees all standing.

"About twenty years ago I took charge of about fifteen acres on our farm, and since then no stock has been permitted to pasture on it. It is wonderful the change that has taken place. To-day it is one of the wildest bits of woodland in the country, and most of the wild flowers indigenous to this locality have reappeared, and I am sure that more birds are to be found on it than on any other piece of land of the same size in the county."

I would now add to what I then said, that if we would have birds about our homes we must have as few cats as possible. There is nothing that destroys as many birds as the cats. We also ought to plant much shrubbery, preferably berry bearing kinds, about our homes. This doubly pays, for by doing so we make our homes more beautiful and attractive, and provide food and nesting places for our birds. Birds love water for drinking and bathing purposes, and for this reason we ought to provide places for them for these uses, but in doing so, we must be careful to so construct them that the cats can not catch them. We also, ought, when snow is on the ground, to provide food for our birds. This we can do by putting out grain in sheltered places and by tacking up bits of meat and suet for them. And above all things, if we would have birds about us, we must treat them kindly. It was my great privilege to visit Mrs. Julia H. Conklin at Westfield, Ind., early in the spring of 1906, where the birds are cared for and treated in the manner I have here indicated, and I was rewarded by seeing more species of birds and larger numbers of them about her home and nesting there than any other place that I have ever visited.

CHAPTER LVI.

NESTING BOXES*

Edward Howe Forbush
Illustrated by the Author.

There is no better way to attract and protect several species of useful birds than to put up nesting-boxes. Every family, rich or poor, that lives in the country, can provide them. Old worn or waste materials may be used if others cannot be procured; for the birds seem to prefer weather-beaten lumber or rusty metal to that which is new, bright or painted.

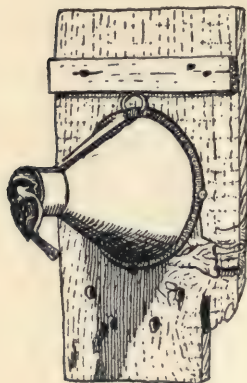
Among my early recollections there comes to mind an old, unpainted, weather-beaten New England farmhouse, the home of a poor farmer with many children. It stood in the shade of a giant elm by the roadside, and high up the rugged trunk of the old tree another home, a box made of ancient shingles weather-stained and moss-grown, was occupied by a family of blue-birds. I noted every detail of their airy castle, and on returning home secured four old shingles and a piece of board from



The Shingle Box

*From *Bird-Lore*, the official organ of the Audubon Societies. This is an illustrated magazine devoted to the study and protection of birds. Published at 66 Fifth Avenue, New York City.

amongst the kindling wood, and with a hatchet and saw a rough box, like the accompanying cut, was made and put up in one of our cherry trees.



A New Use for an
Old Funnel

Soon a pair of bluebirds came, and after that many pairs nested in such boxes. The shingle box answers its purpose fairly well if put up against the side of a building, or on a tall pole or tree trunk, where the cat is not likely to climb. Any small box will do, if it is nearly the right size and shape, but it will be better to have a piece of thin board or shingle nailed flat on the top and projecting a little on all sides to make the roof tight and shed the rain. If the board projects well out over the entrance hole, it will keep the rain from driving in. In Massachusetts, where my experiments have been made, it is best to have the entrance to the box face west. Those who cannot conveniently make or purchase boxes may use tomato cans, old tinware, such as milk-cans, funnels, pails, coffee-pots or tea-pots. The worn out funnel nailed to a piece of old board serves to show one way in which such contrivances may be put up. The board may be nailed or screwed to a tree or the side of a barn.

I have seen a barn swallow's nest built in a lard pail which was used to stop a stove-pipe hole in the chimney of a deserted house. If old tinware is used, it is best to have it in trees where, being shaded by the leaves, it will not be heated by the sun's rays. There should be a few small holes in the bottom of each pot or can, so that, should the rain happen to drive in, it may run out. There never should be an uncovered hole in the top. If a lard pail is used, it must have a cover to keep out the rain, and a hole must be cut in one side



Hollow Limb Box

for an entrance. Tree pruning is a chief cause of the scarcity of certain birds in some localities. When hollow limbs are cut off they may be cut up into sections and each section roofed, bored and mounted in such a way as to make two or more nesting places out of one.

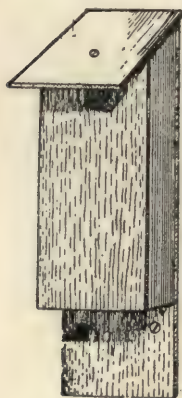
A handsome and durable box may be made of bark. This style of box is one of Mr. William Brewster's ingenious inventions, and yet is untried; but I have made a considerable number of them and see no reason why they will not be serviceable. Old tin utensils may be useful to the farmer to put up in his orchard, but they are not ornamental and should be placed in trees where they will be hidden by the foliage; but the bark box is novel, useful, neat, and also decorative in a rustic way.



The Birch
Bark Box

The birch boxes must be made late in June, when the bark will peel readily. A small tree can be cut down and cut into sections long enough for boxes. Each box is made by peeling off both outer and inner bark, then sawing a slice off

each end of the stick for the bottom and top, tacking the bark on the ends, nailing on the supporting stick, and then covering the top with the green bark from a young pine, to make it water-tight.



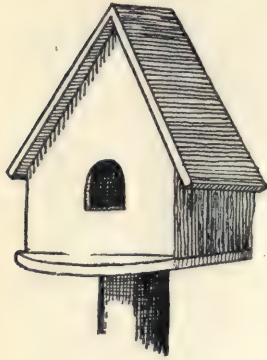
Box for Bluebirds
or Chickadees

These small boxes are suitable for the chickadee. The bark of the chestnut makes strong and durable boxes, which may be covered or roofed with zinc, for the larger birds.

The cat and the English sparrow are the chief enemies of the native birds about our villages and cities. An objection to many bird-houses is that they are not cat-proof.

When my first shingle box had been up three or four weeks the family cat was found, one day, hanging on it and clawing out the young birds. Later a box which

seemed to be cat-proof was devised for blue-birds. It was very deep with an overhanging cover or roof, no perch, and



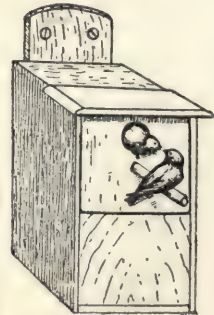
Tree Swallow's Box

the entrance hole well up under the eaves. This makes it difficult, if not impossible, for the cat to hang on and reach the nest. The young birds find it rather hard to get out of such a box at first. They have to make many attempts, and when they finally escape they are quite strong and less likely to be caught by cats than they would be if reared in a box from which they could get out before they were fully fledged.

The ordinary small bird-house that is put up for martins or tree swallows must be set on a tall, slim pole, to give the birds a degree of immunity from the cat. These birds usually seem to prefer a house elevated from fifteen to thirty feet from the ground on such a pole. Ordinarily, the entrance holes are made too near the bottom or floor, and the young birds, being nearly on a level with the doorway, are sometimes pushed out or fall out in their eagerness for food, and so become the prey of the prowling cat.

In building martin boxes their danger may be partially guarded against by having a little platform around each story, and a railing not less than three or four inches in height around the platform.

The shape and size of the bird-boxes must be regulated by the sizes and habits of the birds for which they are intended. It is better to have them comfortably large than too small, for this gives the birds more room and air. In my experience, when birds have their choice, the long, deep boxes placed rather low are more



Box with Sliding Cover

likely to be occupied by the bluebirds, chickadees and wrens, than are the square boxes or bird-houses, especially if they are raised high in the air on poles.

While the exact size of the box is rather immaterial, the size of the entrance hole is most important. This should be just large enough to admit the desired tenant, and small enough to keep out all larger birds. A diameter of one and seven-eighths of an inch will do for wrens, one and one-fourth inches for chickadees, one and one-half inches for bluebirds or swallows, two and one-half inches for martins, and three and one-half inches for flickers and screech owls. By observing this simple rule about the size of the doorway, it sometimes is possible to have several species nesting amicably within a small area.

Martins, breeding as they do in large communities, are particularly subject to parasites and other adverse influences. Nearly all the martins in Massachusetts seem to have succumbed to the cold rain storms of June, 1903. They were then decimated throughout most of southern New England. It seems probable that the only hope of their soon recovering their foothold there lies in putting up more martin boxes and thoroughly cleaning out those now filled with dead martins or with English sparrows' nests. In a few cases in southern Maine where this was done martins bred during the past season. Elsewhere in the same towns there were no martins.

One of the most important questions asked by those who are putting up bird-houses is, "How shall we get rid of the English sparrow?" The sparrows are kept away from my bird boxes by the use of a gun loaded with small charges of powder and dust shot. *They have so well learned their lesson that there has been no necessity for shooting any for two years. Where these birds are plenty, however, continuous shooting may be necessary. I have never had any success in putting up boxes hung so as to swing by a wire. The sparrows do not nest in them, but neither do other birds; nevertheless, some of my correspondents have known both blue-

* I would not kill the sparrows.

birds and tree swallows to nest in these boxes. This is only one of the numerous instances that teach one that his own experience alone is never an infallible guide. Those who are much troubled by the sparrow may find the swinging boxes worth trying.

Little reliance can be placed on boxes without a perch, for a sparrow is likely to get into any hole that any other bird of its size can enter. Mrs. Mary R. Stanley suggests the use of martin boxes without a perch and with the entrance underneath. I have had no experience with such houses.

Every small nesting-box should be provided with a cover or door, by which it can be opened and the contents removed. This is always practicable, except perhaps with large martin boxes, which should have entrance holes large enough so that the rooms can be cleaned out through them. A box which can be opened provides a way to get rid of the sparrows. Their eggs can be removed every week until they tire of laying and leave the locality, or their nests can be destroyed with little trouble. There need be no sentiment about destroying these unfortunate little pests. Squirrels and mice often occupy these boxes, and their nests must be removed unless we prefer them to the birds. All the boxes mentioned above provide for this, except the shingle and bark boxes, which, however, can easily be made to open. The box shown in the cut above is the most convenient of all, where English sparrows are plenty. The door extends half way down the front and is attached to a narrow cover which overlaps a part of the top of the box. This arrangement needs no locking so long as it is not meddled with by children, and can be taken out in an instant without disturbing the nest, leaving an opening large enough to put in the hand and remove the contents of the box at once.

For those who wish to study the habits of such birds as can be induced to nest in boxes, the observation box shown in the cut is very nearly perfect. More than thirty years ago I made the first one for the purpose of studying the domestic economy of a pair of bluebirds. It is a simple affair with one side rabbeted for a pane of glass, and a door which shuts over the glass. The door is kept closed most of the time until the

young are hatched. It can then be kept open as much as seems desirable, to observe the habits of the birds through the glass; but it must be arranged so that the sun will not shine in it, as that might be fatal to the young birds. The box shown in the cut is mounted on a short board projecting from my window sill. The door is hinged at the bottom by a piece of leather, and opens toward the window. It has been occupied for three seasons by chickadees, and any one sitting at



OBSERVATION BOX OPEN



OBSERVATION BOX. CLOSED

the open window can watch the young birds as they are fed, note their growth and development, the character and amount of their food, the nest-cleaning and all their household affairs. The old birds were first attracted to the windows by feeding them there. Then they found the box a good place for shelter, and finally nested in it. They are good neighbors, attending to their own business and, as unpaid laborers in our fruit trees and woodland, their work of clearing insects from the premises is of the utmost value.

A Prayer for the Birds

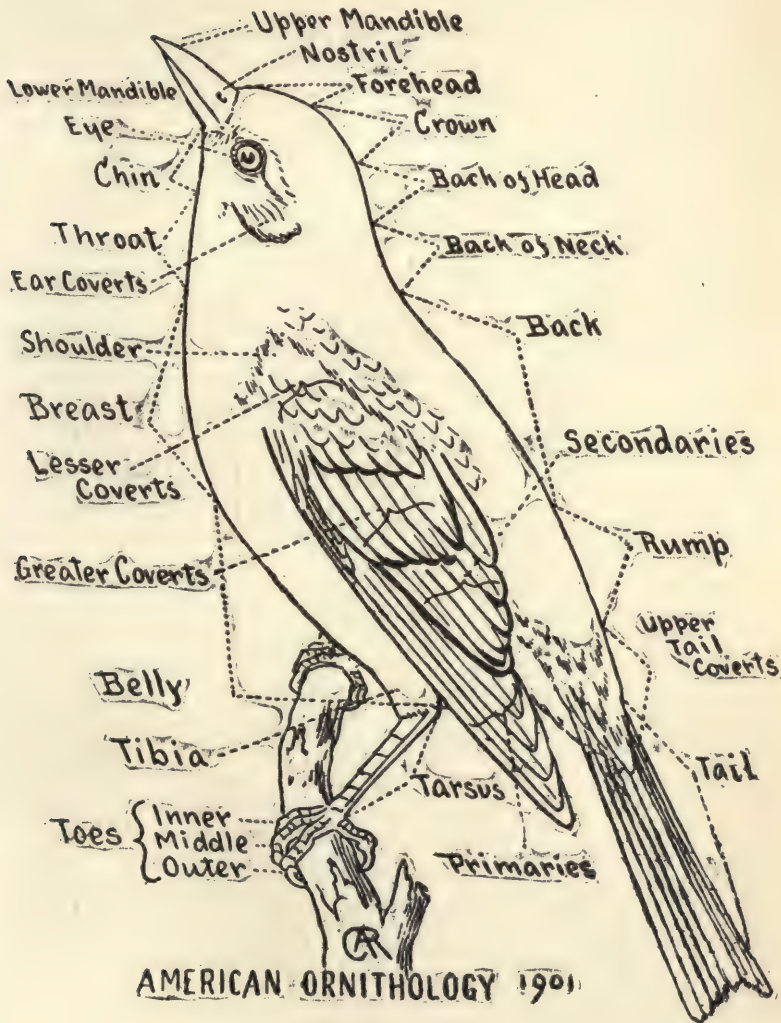


Maker of earth and sea and sky,
Creation's sovereign Lord and King,
Who hung the starry world on high,
And formed alike the sparrow's wing,
Bless the dumb creatures of Thy care,
And listen to their voiceless prayer.

For us they toil, for us they die,
These humble creatures Thou hast made;
How shall we dare their rights deny,
On whom Thy seal of love is laid?
Teach Thou our hearts to hear their plea,
As Thou dost man's in prayer to Thee.

—Emily B. Lord.

Index of Bird's Anatomy



Index of Orders and Families

<i>Order</i>	<i>Family</i>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Page</i>
Anseres.....	Anatidæ.....	Aix sponsa.....	Wood Duck.....	75
Herodiones.....	Ardeinæ.....	Ardea herodias.....	Great Blue Heron.....	69
Limicolæ.....	Scolopacidæ.....	Philohela minor.....	American Woodcock.....	81
Limicolæ.....	Charadriidæ.....	Ægialitis vocifera.....	Killdeer.....	87
Gallinæ.....	Tetraonidæ.....	Colinus virginianus.....	Bob White.....	283
Columbæ.....	Columbidæ.....	Zenaidura macroura.....	Mourning Dove.....	237
Raptores.....	Cathartidæ.....	Cathartes aura.....	Turkey Vulture.....	51
Raptores.....	Falconidæ.....	Bufo borealis.....	Red-tailed Hawk.....	29
Raptores.....	Falconidæ.....	Falco sparverius.....	American Sparrow Hawk.....	35
Raptores.....	Bubonidæ.....	Megascops asio.....	Screech Owl.....	45
Raptores.....	Bubonidæ.....	Bubo virginianus.....	Great Horned Owl.....	39
Coccyges.....	Cuculidæ.....	Coccyzus americanus.....	Yellow-billed Cuckoo.....	187
Coccyges.....	Alcedinidæ.....	Ceryle alcyon.....	Belted Kingfisher.....	63
Pici.....	Picidæ.....	Dryobates pubescens.....	Downy Woodpecker.....	265
Pici.....	Picidæ.....	Melanerpes erythrocephalus.....	Red-headed Woodpecker.....	257
Pici.....	Picidæ.....	Colaptes auratus.....	Flicker.....	249
Macrochires.....	Caprimulgidæ.....	Chordeiles virginianus.....	Night Hawk.....	181
Macrochires.....	Micropodidæ.....	Chætura pelagica.....	Chimney Swift.....	209
Macrochires.....	Trochilidæ.....	Trochilus colubris.....	Ruby-throated Hummingbird.....	175
Passeres.....	Tyrannidæ.....	Tyrannus tyrannus.....	Kingbird.....	131
Passeres.....	Tyrannidæ.....	Sayornis phœbe.....	Phœbe.....	137
Passeres.....	Corvidæ.....	Cyanocitta cristata.....	Blue Jay.....	23
Passeres.....	Corvidæ.....	Corvus americanus.....	American Crow.....	17
Passeres.....	Icteridæ.....	Dolichonyx oryzivorus.....	Bobolink.....	165
Passeres.....	Icteridæ.....	Molothrus ater.....	Cowbird.....	149
Passeres.....	Icteridæ.....	Sturnella magna.....	Meadow Lark.....	153
Passeres.....	Icteridæ.....	Icterus galbula.....	Baltimore Oriole.....	159
Passeres.....	Icteridæ.....	Quiscalus quiscula ænus.....	Bronzed Grackle.....	143
Passeres.....	Fringillidæ.....	Spinus tristis.....	American Goldfinch.....	229
Passeres.....	Fringillidæ.....	Spizella monticola.....	Tree Sparrow.....	293
Passeres.....	Fringillidæ.....	Junco hyemalis.....	Junco.....	289
Passeres.....	Fringillidæ.....	Melospiza fasciata.....	Song Sparrow.....	105
Passeres.....	Fringillidæ.....	Cardinalis cardinalis.....	Cardinal.....	9
Passeres.....	Fringillidæ.....	Habia ludoviciana.....	Rose-breasted Grosbeak.....	221
Passeres.....	Fringillidæ.....	Passerina cyanea.....	Indigo Bunting.....	223

Index of Orders and Families—*Continued*

<i>Order</i>	<i>Family</i>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Page</i>
Passeres.....	Fringillidæ.....	<i>Spiza americana</i>	Dickcissel.....	171
Passeres.....	Tanagridæ.....	<i>Piranga erythromelas</i>	Scarlet Tanager	217
Passeres.....	Hirundinidæ.....	<i>Progne subis</i>	Purple Martin	199
Passeres.....	Hirundinidæ.....	<i>Bhelidon erythrogaster</i>	Barn Swallow	203
Passeres.....	Ampelidæ.....	<i>Ampelis cedrorum</i> ..	Cedar Waxwing	243
Passeres.....	Laniidæ.....	<i>Lanius ludovicianus</i>	Loggerhead Shrike.....	57
Passeres.....	Vireonidæ.....	<i>Vireo olivaceus</i>	Red-eyed Vireo.....	233
Passeres.....	Mniotiltidæ.....	<i>Dendrocia æstiva</i>	Yellow Warbler	193
Passeres.....	Troglodytidæ.....	<i>Galeoscoptes carolinensis</i>	Cat Bird.....	119
Passeres.....	Troglodytidæ.....	<i>Harporhynchus rufus</i>	Brown Thrasher.....	115
Passeres.....	Troglodytidæ.....	<i>Troglodytes ædon</i>	House Wren ..	125
Passeres.....	Certhiidæ.....	<i>Certhia familiaris americana</i>	Brown Creeper	279
Passeres.....	Paridæ.....	<i>Sitta carolinensis</i>	White-breasted Nuthatch	271
Passeres.....	Paridæ.....	<i>Parus bicolor</i>	Tufted Titmouse	275
Passeres.....	Turdidæ.....	<i>Turdus mustelinus</i>	Wood Thrush	111
Passeres.....	Turdidæ.....	<i>Merula migratoria</i>	American Robin	91
Passeres.....	Turdidæ.....	<i>Sialia sialis</i>	Bluebird.....	99

Index of Contents

- Abbott, C. C., quoted, 21, 77.
 Accipitrinæ, of what composed, 29.
 Adaptability of birds to various conditions, 268.
 Aeolus, father of Halcyone, 67.
 Aeolus guards the winds, 68.
 Agialitis vocifera, 87-90.
 Aix sponsa, 75-79.
 Alaudidæ, family of, 153.
 Alcedinidæ, family of, 63.
 Alexander, Grace, quoted, 42.
 Allen, James Lane, quoted, 13, 15.
 American golden plover, migration of, 89.
 American goldfinch, 229-232.
 American Ornithology, quotation from, 23, 41, 153, 213, 251.
 American robin, 91-97.
 American sparrow hawk, 35-38.
 American woodcock, 81-85.
 Ampelidæ, family of, 243.
 Ampells cedrorum, 243-247.
 Animals depend upon vegetables, 297.
 Animals, wild, at Buzzard's Roost, 6.
 Anatidæ, family of, 75.
 Anatinae, subfamily of, 75.
 Anserinæ, subfamily of, 75.
 A Naturalist's Rambles About Home; quotation from, 21, 77.
 Aphis, rapid increase of, 301.
 Appollo, visit to Ceyx, 67.
 Artic Circle, crows breeding within, 18.
 Ardeia herodias, 69-73.
 Ardeidæ, family of, 69.
 Ardeinæ, subfamily of, 69.
 Audubon, John J., quoted, 19, 27, 54, 71, 77, 92, 93, 122, 140, 201, 211.
 Audubon, John J., sketch of, 214.
 Audubon Park, location of, 214.
 Australia's rabbit pest, 303.
 Autumn and spring compared, 277.
 Bailey, William L., quoted, 89, 236.
 Baltimore, Lord, account of, 159.
 Baltimore oriole, 159-163.
 Barn swallow, 203-207.
 Baskett, James N., quoted, 70, 172, 239, 253, 272, 277, 278, 291.
 Bass, Mamie L., quoted, 223.
 Bates, Mrs., quoted, 207.
 Beal, F. E. L., quoted, 108, 133, 139, 145, 162, 185, 266, 267, 295.
 Beech trees at Buzzard's Roost, 259.
 Beech, the Nesbit, 4, 259.
 Beetles, click, account of, 163.
 Belted kingfisher, 63-68.
 Bendire, Major Charles, quoted, 23, 31, 36, 151, 162, 166, 177, 184, 190, 210, 250, 266, 268, 286.
 Bible account of the dove, 240.
 Bible, quotations from, 4, 240, 297, 298.
 Bicknell, Eugene P., quoted, 82, 293.
 Big Branch described, 107.
 Bills of birds, shapes and uses of, 12.
 Bill of—
 Bluebird, 100.
 Bobolink, 165.
 Bob White, 284.
 Bunting, Indigo, 226.
 Cardinal, 9.
 Catbird, 120.
 Cowbird, 149.
 Creeper, Brown, 279.
 Crow, American, 17.
 Cuckoo, Yellow-billed, 188.
 Dickcissel, 171.
 Dove, Mourning, 238.
 Duck, Wood, 76.
 Flicker, 250.
 Goldfinch, American, 230.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 221.
 Hawk, Night, 182.
 Hawk, Red-tailed, 30.

Index of Contents—Continued

- Hawk, Sparrow, 35.
 Heron, Great blue, 70.
 Hummingbird, Ruby-throated, 176.
 Jay, Blue, 24.
 Junco, 290.
 Killdeer, 88.
 Kingbird, 132.
 Kingfisher, Belted, 64.
 Lark, Meadow, 154.
 Martin, Purple, 200.
 Nuthatch, White-breasted, 273.
 Oriole, Baltimore, 181.
 Owl, Great horned, 40.
 Owl, Screech, 46.
 Phoebe, 138.
 Robin, American, 92.
 Shrike, Loggerhead, 58.
 Sparrow, Song, 106.
 Sparrow, Tree, 294.
 Swallow, Barn, 203.
 Swift, Chimney, 210.
 Tanager, Scarlet, 217.
 Thrasher, Brown, 116.
 Thrush, Wood, 112.
 Titmouse, Tufted, 276.
 Vireo, Red-eyed, 234.
 Vulture, Turkey, 52.
 Warbler, Yellow, 194.
 Waxwing, Cedar, 244.
 Woodcock, American, 82.
 Woodpecker, Downy, 265.
 Woodpecker, Red-headed, 258.
 Wren, House, 125.
- Bird Book, quotation from, 252.
 Bird Life, quotations from, 12, 112.
 Bird Lore, quotations from, 280, 313.
 Birds and Nature, quotation from, 260.
 Bird study, how and when commenced, 246.
 Birds and Their Relation to Man, quotation from, 139.
 Birds an inspiration to a higher life, 305.
 Birds, a paradise of, 6.
 Birds as allies of man, 298.
 Birds as unique creatures, 304.
 Birds, communication between, 26, 196.
 Birds, everywhere to do good, 302.
 Birds, evolution of, 111.
 Birds in the country to come, 141.
- Birds, God first cared for them, 306.
 Birds, legend of their origin, 304.
 Birds of California, quotation from, 251.
 Birds of cerulean tint, 99.
 Birds of Illinois, quotation from, 172.
 Birds of Indiana, quotation from, 78, 251.
 Birds of North America, quotation from, 105.
 Birds only creatures of song, 130.
 Birds that Hunt and are Hunted, quotation from, 30.
 Birds, why protect them, 297.
 Birth and birthplace of the author, 3.
 Blanchan, Neltje, quoted, 30, 116, 120, 223, 231.
 Bluebird, 99-103.
 Blue jay, 23-28.
 Blue jay buries its food, 28.
 Blue jay mates with robin, 25.
 Blue jays communicate with other birds, 28.
 Blue jays mimic other birds in distress, 27.
 Blue jays and sparrows attack owl, 28.
 Bobolink, 165-169.
 Bob White, 283-288.
 Bob White, meeting of, 6.
 Botaurinæ, subfamily of, 69.
 Brisson, quoted, 243.
 Britton, Elizabeth G., quoted, 223.
 Brooks, Jennie, quoted, 11.
 Bronzed grackle, 143-147.
 Brown creeper, 279-281.
 Brown thrasher, 115-118.
 Brown Thrush, 115-118.
 Bubonidæ, family of, 39.
 Bubo virginianus, 39-43.
 Bunting, Indigo, 225-228.
 Buntings, species described, 225.
 Burroughs, John, quoted, 99, 144, 169, 176, 227, 257.
 Butcher bird, why so named, 60.
 Buteo borealis, 29-33.
 Butler, Amos W., see "Measurement of birds."
 Butler, Amos W., quoted, 78, 162, 171, 196, 232, 236, 251, 286.
 Buzzard's Roost, account of, 1-8.
 Buzzard's Roost tree, stump of, 5.
 Buzzard, Turkey, 51-56.

Index of Contents—Continued

Cabin home of author's family, 3.
Cabins, duplicates of fathers, 3.
Caging of birds, 15.

Calls of—

Bob White, 285.
Creepers, Brown, 281.
Crow, American, 21.
Cuckoo, Yellow-billed, 189.
Dove, Mourning, 240.
Duck, Wood, 78.
Flicker, 250.
Grackle, Bronzed, 144.
Hawk, Night, 185.
Hawk, Red-tailed, 33.
Hawk, Sparrow, 37.
Heron, Great Blue, 72.
Jay, Blue, 26.
Junco, 290.
Killdeer, 89.
Kingbird, 133.
Kingfisher, Belted, 66.
Lark, Meadow, 154.
Nuthatch, White-breasted, 272.
Owl, Great Horned, 41.
Owl, Screech, 48.
Phoebe, 137.
Sparrow, Tree, 294.
Swallow, Barn, 206.
Tanager, Scarlet, 220.
Woodcock, American, 85.
Woodpecker, Downy, 268.
Woodpecker, Red-headed, 263.
Calvert, George, 159.
Campbell, Walter, quoted, 61.
Caprimulgidae, family of, 181.
Cardinal, 9-15.
Cardinals at Somerleaze, 13.
Cardinalis cardinalis, 9-15.
Catbird, 119-123.
Cathartes aura, 51-56.
Cecropia moth, cocoon of, 107.
Cedar waxwing, 243-247.
Cedar waxwing robbing nesting material, 245.
Certhia familiaris americana, 279-281.
Certhiidae, family of, 279.
Ceryle alcyon, 63-68.
Ceyx, death of, 67.
Ceyx, genealogy of, 67.
Ceyx, visit of to Apollo, 67.
Chapman and Reed, quoted, 45.
Chapman, Frank M., quoted, 12, 77, 82, 103, 112, 114, 193, 283, 294, 302.

Chætura pelagica, 209-215.
Charadriidae, family of, 87.
Cheney, Simon P., quoted, 107, 118, 130, 156, 162.
Chelidon erythrogaster, 203-207.
Cherry trees at Buzzard's Roost, 247.
Chimney swift, 209-215.
Chinch bug, damage by, 156.
Chordeiles virginianus, 181-186.
Chuck-will's-widow, place of, 181.
Clamatores, suborder of, 131.
Cocoon of cecropia moth, 107.
Coccyzus americanus, 187-191.
Coffin, Dr. O. S., quoted, 72.
Colaptes auratus, 249-255.
Colinus virginianus, 283-288.
Collett, Prof. John, quoted, 54.
Colorado beetle, destroyers of, 223.
Color calls of birds, 253.
Color Key to North American Birds, quoted, 45.
Columbidae, family of, 237.
Communication between birds, 26, 196.
Companionship of the birds, 278.
Comstock, Professor, quoted, 163.
Cooke, Wells W., quoted, 13, 89, 93, 132, 167, 183, 194, 211, 234, 284.
Corliss' care of robin's nest, 96.
Corvidae, family of, described, 17.
Corvus americanus, 17-21.
Cottage, location of, 6.
Cottman, George S., quoted, 18.
Cotton tail of the rabbit, 291.
Coues, Elliott, quoted, 69, 119.
Country, moving to, 3.
Country life, advantages of, 277.
Cowbird, 149-152.
Cratty, Cora Mae, quoted, 123.
Creepers, Brown, 279-281.
Creepers, family of, 279.
Crow, American, 18-21.
Crow, American and European distinguished, 17.
Crow in disrepute and why, 19.
Crow, intelligence of, 21.
Crow roost, description of, 18.
Cruelty of killing birds, 262.
Cuckoo, European, 189, 191.
Cuckoos, family of, 187.
Cuckoo, yellow-billed, 187-191.
Cuckoo's feet, peculiarity of, 188.
Cuculidae, family of, 187.
Cyanocitta cristata, 23-28.
Cygninae, subfamily of, 75

Index of Contents—*Continued*

- Darwin, Charles, quoted, 25, 269, 291.
 Darwinian theory of evolution, 111.
 Dendroica aestiva, 193-197.
 Description of—
 Bluebird, 100.
 Bobolink, 165.
 Bob White, 284.
 Bunting, Indigo, 225.
 Cardinal, 9.
 Catbird, 120.
 Cowbird, 149.
 Creeper, Brown, 279.
 Crow, American, 17.
 Cuckoo, Yellow-billed, 188.
 Dickcissel, 171.
 Dove, Mourning, 238.
 Duck, Wood, 76.
 Flicker, 250.
 Goldfinch, American, 230.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 221.
 Hawk, Night, 182.
 Hawk, Red-tailed, 30.
 Hawk, Sparrow, 35.
 Heron, Great Blue, 70.
 Hummingbird, Ruby-throated, 175.
 Jay, Blue, 24.
 Junco, 290.
 Killdeer, 87.
 Kingbird, 132.
 Kingfisher, Belted, 64.
 Lark, Meadow, 154.
 Martin, Purple, 200.
 Nuthatch, White-breasted, 271.
 Oriole, Baltimore, 160.
 Owl, Great horned, 40.
 Owl, Screech, 45.
 Phoebe, 138.
 Robin, American, 92.
 Shrike, Loggerhead, 58.
 Sparrow, Song, 106.
 Sparrow, Tree, 294.
 Swallow, Barn, 203.
 Swift, Chimney, 210.
 Tanager, Scarlet, 217.
 Thrasher, Brown, 116.
 Thrush, Wood, 112.
 Titmouse, Tufted, 276.
 Vireo, Red-eyed, 234.
 Vulture, Turkey, 52.
 Warbler, Yellow, 194.
 Waxwing, Cedar, 244.
 Woodcock, American, 82.
 Woodpecker, Downy, 265.
 Woodpecker, Red-headed, 258.
 Wren, House, 125.
 Desert Sparrow Hawk, 35.
 Dichromatic color of screech owls, 45.
 Dickcissel, 171-174.
 Dolichonyx oryzivorus, 165-169.
 Douglass, Benjamin W., quoted, 300.
 Dove, Mourning, 237-241.
 Downy woodpecker, 265-269.
 Dryobates pubescens, 265-269.
 Ducks, first birds acquainted with, 3.
 Duck, Wood, 75-79.
 Dugmore, A. R., quoted, 117, 222, 286.
 Dury, Charles, quoted, 43.
 Easter morning, fields alive with birds, 4.
 Easter, "the Lord has risen," etc., 5.
 Easter tramp to Indianapolis, 5.
 Eckstrom, Fanny Hardy, quoted, 252.
 Eggs of—
 Bluebird, 101.
 Bobolink, 168.
 Bob White, 285.
 Bunting, Indigo, 226.
 Cardinal, 14.
 Catbird, 120.
 Cowbird, 151.
 Creeper, Brown, 281.
 Crow, American, 19.
 Cuckoo, Yellow-billed, 189.
 Dickcissel, 172.
 Dove, Mourning, 239.
 Duck, Wood, 77.
 Flicker, 252.
 Goldfinch, American, 231.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 222.
 Hawk, Night, 184.
 Hawk, Red-tailed, 31.
 Hawk, Sparrow, 36.
 Heron, Great Blue, 71.
 Hummingbird, Ruby-throated, 178.
 Jay, Blue, 25.
 Junco, 290.
 Killdeer, 88.
 Kingbird, 133.
 Kingfisher, Belted, 65.
 Lark, Meadow, 155.
 Martin, Purple, 201.

Index of Contents—*Continued*

- Nuthatch, White-breasted, 272.
 Oriole, Baltimore, 161.
 Owl, Great Horned, 41.
 Owl, Screech, 47.
 Phoebe, 139.
 Robin, American, 94.
 Shrike, Loggerhead, 59.
 Sparrow, Song, 106.
 Sparrow, Tree, 294.
 Swallow, Barn, 204.
 Swift, Chimney, 212.
 Tanager, Scarlet, 218.
 Thrasher, Brown, 117.
 Thrush, Wood, 113.
 Titmouse, Tufted, 276.
 Vireo, Red-eyed, 235.
 Vulture, Turkey, 53.
 Warbler, Yellow, 195.
 Waxwing, Cedar, 246.
 Woodcock, American, 84.
 Woodpecker, Downy, 266.
 Woodpecker, Red-headed, 261.
 Wren, House, 126.
 Elmhurst, wren's nest at, 127.
 English sparrows fight bluebirds, 101.
 English sparrows fight wrens, 127.
 European cuckoo, account of, 189, 191.
 European goldfinch, account of, 229.
 Evans, Dr. Carlton, quoted, 161.
 Everman, B. W., quoted, 252.
 Evolution, Darwinian theory of, 111.
 Falconidæ, family of, described, 29.
 Falco sparverius, 35-38.
 Farm life, appreciation of, 146.
 Feathers, birds only wear them, 304.
 Feathers, preening of, 255.
 Fisher, Dr. A. K., quoted, 31, 37, 49, 79, 83, 238.
 Flagg, Wilson, quoted, 235.
 Flicker, account of, 249-255.
 Flicker, red-shafted, nest of, 251.
 Flight of birds, 180.
 Flight of—
 Dove, Mourning, 238.
 Goldfinch, American, 231.
 Hawk, Night, 184.
 Hawk, Red-tailed, 32.
 Hawk, Sparrow, 38.
 Heron, Great blue, 72.
 Kingfisher, Belted, 66.
 Martin, Purple, 200.
 Shrike, Loggerhead, 59.
 Swallow, Barn, 204.
 Swift, Chimney, 213.
 Vulture, Turkey, 55.
 Woodpecker, Red-headed, 258.
 Flowers, wild, quantities of, 6.
 Food of—
 Bluebird, 102.
 Bobolink, 166.
 Bob White, 287.
 Bunting, Indigo, 228.
 Cardinal, 9.
 Catbird, 122.
 Cowbird, 152.
 Creeper, Brown, 181.
 Crow, American, 19.
 Cuckoo, Yellow-billed, 190.
 Dickcissel, 173.
 Dove, Mourning, 239.
 Duck, Wood, 78.
 Flicker, 255.
 Goldfinch, American, 230.
 Grackle, Bronzed, 145.
 Grosbeak, Rose-breasted, 223.
 Hawk, Night, 185.
 Hawk, Red-tailed, 31.
 Hawk, Sparrow, 37.
 Heron, Great Blue, 72.
 Hummingbird, Ruby-throated, 178.
 Jay, Blue, 27.
 Junco, 291.
 Killdeer, 88.
 Kingbird, 133.
 Kingfisher, Belted, 65.
 Lark, Meadow, 156.
 Martin, Purple, 202.
 Nuthatch, White-breasted, 273.
 Oriole, Baltimore, 162.
 Owl, Great Horned, 42.
 Owl, Screech, 49.
 Phoebe, 139.
 Robin, American, 97.
 Shrike, Loggerhead, 60.
 Sparrow, Song, 108.
 Sparrow, Tree, 295.
 Swallow, Barn, 205.
 Swift, Chimney, 215.
 Tanager, Scarlet, 220.
 Thrasher, Brown, 117.
 Thrush, Wood, 113.
 Titmouse, Tufted, 276.
 Vireo, Red-eyed, 236.
 Vulture, Turkey, 54.
 Warbler, Yellow, 195.
 Waxwing, Cedar, 246.

Index of Contents—Continued

- Woodcock, American, 82.
 Woodpecker, Downy, 266.
 Woodpecker, Red-headed, 262.
 Wren, House, 128.
 Food of insectivorous birds, 230.
 Forbes, Prof. S. L., quoted, 113, 224, 228, 246, 262.
 Forbush, Professor, quoted, 190.
 Forest and Stream, quotation from, 252.
 Fringillidæ, family of described, 9.
 Fringillidæ, usefulness of, 298.
 Fruit trees planted at Buzzard's Roost, 8.
 Gaga, nickname of the author, 173.
 Galeoscoptes carolinensis, 119-123.
 Garrulinae, subfamily of, 23.
 Genesis, quotations from, 2, 297.
 Gentry, Thomas G., quoted, 285.
 Ghost Hollow, visit to, 5.
 Gibson, W. Hamilton, quoted, 152.
 Goldfinch, American, 229-232.
 Goldfinch, European, 229.
 Goldfinch, robbed of nesting materials, 245.
 Goatsucker family, account of, 181.
 Grackle, Bronzed, 143-147.
 Grackles distinguished, 143.
 Gray, Prof. Asa, quoted, 297.
 Great Blue Heron, 69-73.
 Great Horned Owl, 39-43.
 Grosbeak, Cardinal, 9-15.
 Grosbeak, Rose-breasted, 221-224.
 Grosbeaks, species of, 221.

 Halcyon days, origin of, 68.
 Halcyone, daughter of Aeolus, 67.
 Halcyone grieves over Ceyx, 67.
 Hallerman, Lieutenant, crows found by, 18.
 Harper's Magazine, quotation from, 11.
 Harporhynchus rufus, 115-118.
 Harrison, Ft. Benjamin, referred to, 3.
 Hawks and Owls from the Standpoint of the Farmer, quotation from, 49.
 Hawks, owls and shrikes as rodent destroyers, 303.
 Hawk, Night, 181-186.
 Hawk, Red-legged, as rodent destroyer, 304.
 Hawk, Red-tailed, 29-33.
 Hawk, Sparrow, 35-38.
 Hazzard, Wm. Miles, quoted, 166.

 Hendlee, W. O., quoted, 71.
 Heron, Great blue, 69-72.
 Heronries described, 71.
 Herons, White, feeding, 73.
 Herrick, Prof., quoted, 246.
 Hesperus, father of Ceyx, 65.
 Hine, Jane L., quoted, 182.
 Hirundinidae, family of, 199.
 Hodge, Dr. C. F., quoted, 297.
 Hoosier Bards, quotations from, 3, 11.
 Horned larks, 153.
 House wren, 125-130.
 How Birds Affect the Orchard, quotation from, 266.
 Hummingbird, ruby-throated, 175-180.
 Hummingbirds, family of, 175.
 Hybrids of birds, Darwin quoted, 25.

 I am only a tiny sparrow, 306.
 Icteridae, family of described, 143.
 Icterus galbula, 159-163.
 Icterus, genus of, 159.
 Illiger quoted, 243.
 Illustrations of tongues of woodpeckers, 254.
 Increase of weeds, insects and rodents, 298.
 Incubation of—
 Bluebird, 101.
 Bob White, 286.
 Bunting, Indigo, 226.
 Cardinal, 14.
 Crow, American, 19.
 Cuckoo, Yellow-billed, 189.
 Dove, Mourning, 239.
 Duck, Wood, 77.
 Flicker, 252.
 Goldfinch, American, 231.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 222.
 Hawk, Night, 184.
 Hawk, Red-tailed, 31.
 Hawk, Sparrow, 36.
 Heron, Great blue, 71.
 Hummingbird, Ruby-throated, 178.
 Jay, Blue, 25.
 Kingbird, 181.
 Kingfisher, Belted, 65.
 Lark, Meadow, 155.
 Martin, Purple, 201.
 Oriole, Baltimore, 163.
 Owl, Great horned, 41.

Index of Contents—Continued

- Owl, Screech, 47.
 Phoebe, 139.
 Robin, American, 94.
 Shrike, Loggerhead, 59.
 Sparrow, Song, 106.
 Swallow, Barn, 204.
 Swift, Chimney, 212.
 Tanager, Scarlet, 218.
 Thrush, Wood, 113.
 Vulture, Turkey, 53.
 Woodpecker, Downy, 266.
 Woodpecker, Red-headed, 261.
 Indianapolis, author's birthplace, 1.
 Indiana Academy of Science, members of, 7.
 Indian, Miami chief, grave of, 5.
 Indigo bunting, 225-228.
 Ingersoll, Ernest, quoted, 40.
 Insects, annual damage by, 302.
 Insects, a vicious element, 298.
 Irving, Washington, quoted, 168.
 Jacob's Haven, crows found there, 18.
 Japanese appreciate the heron, 73.
 Japanese bird drawings, beauty of, 73.
 Jay, Blue, 23-28.
 Jewish Synagogue, reference to, 215.
 Jones, Lynds, quoted, 47.
 Junco, 289-292.
 Junco hyemalis, 289-292.
 Juncos, species of, 289.
 Judd, Dr. S. D., quoted, 117, 122, 173, 178, 266, 285, 299.
 Kentucky Cardinal, quotation from, 13, 15.
 Key of North American Birds, quotation from, 69, 119.
 Killdeer, 87-90.
 King, Prof. F. H., quoted, 37, 196, 202, 228, 236, 239, 246, 273.
 King, John, referred to, 127, 246.
 Kingbird, 131-135.
 Kingfisher, Belted, 63-68.
 Kingfisher, Texas, 63.
 Kingfisher, family of described, 63.
 Kissing of cedar waxwing, 244.
 Laniidae, family of described, 57.
 Lanius ludovicianus, 57-61.
 Larcom, Lucy, quoted, 118.
 Lark, Meadow, 153-157.
 Larks, family of described, 153.
 Lee's H. H. Story of the Robin, 96.
 Legend of the barn swallow, 206.
 Legend of the belted kingfisher, 66.
 Legend of the bluebird, 100.
 Legend of the cardinal, 10.
 Legend of the European robin, 92.
 Legend of the origin of birds, 304.
 Lewis and Clarke's account of the blue jay, 23.
 Lewis, Wm. H., quoted, 260, 261.
 Life and Immortality, quotation from, 285.
 Life Histories of North American Birds, quotations from, 23, 36.
 Linnaeus, quoted, 74, 243.
 Loggerhead shrike, 57-61.
 Longfellow, Henry W., quoted, 20, 95, 205.
 Lowell, James Russell, quoted, 101, 138, 145.
 Macgillvary, quoted on hybrids, 25.
 Male birds, migration of, 93, 140.
 Magpie, range of, 23.
 Marble, Mr., quoted, 196.
 Marlatt, Prof. C. R., quoted, 301.
 Marmon, Mrs. Elizabeth C., visit to, 246.
 Martin, Purple, 199-202.
 Martlet, description of, 201.
 Mathews, F. S., quoted, 162.
 Mating of—
 Bluebird, 101.
 Bob White, 285.
 Bunting, Indigo, 226.
 Cardinal, 13.
 Catbird, 120.
 Cowbird, 150.
 Cuckoo, Yellow-billed, 189.
 Dove, Mourning, 238.
 Duck, Wood, 76.
 Flicker, 250.
 Hawk, Red-tailed, 30.
 Hawk, Sparrow, 36.
 Hummingbird, Ruby-throated, 176.
 Killdeer, 88.
 Lark, Meadow, 155.
 Owl, Great horned, 41.
 Owl, Screech, 46.
 Shrike, Loggerhead, 58.
 Sparrow, Song, 106.
 Swallow, Barn, 204.
 Tanager, Scarlet, 218.

Index of Contents—Continued

- Thrush, Wood, 112.
 Vireo, Redeyed, 234.
 Mavity, Paul, quoted, 114.
 McBride, R. W., quoted, 131.
 Meadow Lark, 153-157.
 Meadow Larks, species of, 153.
 Measurements by A. W. Butler
 of—
 Bluebird, 99.
 Bobolink, 165.
 Bob White, 283.
 Bunting, Indigo, 225.
 Cardinal, 9.
 Catbird, 119.
 Cowbird, 149.
 Creeper, Brown, 279.
 Crow, American, 17.
 Cuckoo, Yellow-billed, 187.
 Dickcissel, 171.
 Dove, Mourning, 237.
 Duck, Wood, 75.
 Flicker, 249.
 Goldfinch, American, 229.
 Grackle, Bronzed, 143.
 Grosbeak, Rose-breasted, 221.
 Hawk, Night, 181.
 Hawk, Red-tailed, 29.
 Hawk, Sparrow, 35.
 Heron, Great Blue, 69.
 Hummingbird, Ruby-throated, 175.
 Jay, Blue, 23.
 Junco, 289.
 Killdeer, 87.
 Kingbird, 131.
 Kingfisher, Belted, 63.
 Lark, Meadow, 153.
 Martin, Purple, 199.
 Nuthatch, White-breasted, 271.
 Oriole, Baltimore, 159.
 Owl, Great horned, 39.
 Owl, Screech, 45.
 Phoebe, 137.
 Robin, American, 91.
 Shrike, Loggerhead, 57.
 Sparrow, Song, 105.
 Sparrow, Tree, 293.
 Swallow, Barn, 203.
 Swift, Chimney, 209.
 Tanager, Scarlet, 217.
 Thrasher, Brown, 115.
 Thrush, Wood, 111.
 Titmouse, Tufted, 275.
 Vireo, Red-eyed, 233.
 Vulture, Turkey, 51.
 Warbler, Yellow, 193.
 Waxwing, Cedar, 243.
 Woodcock, American, 81.
 Woodpecker, Downy, 265.
 Woodpecker, Red-headed, 257.
 Wren, House, 125.
 Meat, feeding to the birds, 277.
 Megascops asio, 45-49.
 Melanerpes erythrocephalus, 257-263.
 Melospiza fasciata, 105-109.
 Merginae, subfamily of, 73.
 Merriam, Florence A., quoted, 207, 235, 245, 286.
 Merula migratoria, 91-97.
 Michelet, the historian, quoted, 304.
 Michropodidae, family of, 209.
 Migration of—
 Bluebird, 99, 100.
 Bobolink, 165, 166.
 Bob White, 283, 284.
 Bunting, Indigo, 225, 226.
 Cardinal, 1, 13.
 Catbird, 119, 120.
 Cowbird, 149, 150.
 Creeper, Brown, 279, 281.
 Crow, American, 17, 18.
 Cuckoo, Yellow-billed, 187, 188.
 Dickcissel, 171, 172.
 Dove, Mourning, 237, 238.
 Duck, Wood, 75, 76.
 Flicker, 249, 250.
 Goldfinch, American, 229.
 Grackle, Bronzed, 143, 144.
 Grosbeak, Rose-breasted, 221, 222.
 Hawk, Night, 181, 183.
 Hawk, Red-tailed, 29, 30.
 Hawk, Sparrow, 35, 36.
 Heron, Great Blue, 69, 71.
 Hummingbird, Ruby-throated, 175, 176.
 Jay, Blue, 23, 24.
 Junco, 289, 290.
 Killdeer, 87, 88.
 Kingbird, 131, 132.
 Kingfisher, Belted, 63, 64.
 Lark, Meadow, 153, 154.
 Martin, Purple, 199, 200.
 Nuthatch, White-breasted, 271.
 Oriole, Baltimore, 159, 160.
 Owl, Great horned, 39, 40.
 Owl, Screech, 45, 46.
 Phoebe, 134, 138.
 Plover, American golden, 89.
 Robin, American, 91, 93.
 Shrike, Loggerhead, 57, 58.

Index of Contents—*Continued*

- Sparrow, Song, 105, 106.
 Sparrow, Tree, 293.
 Swallow, Barn, 203, 204.
 Swift, Chimney, 209, 210.
 Tanager, Scarlet, 217, 218.
 Thrasher, Brown, 115, 116.
 Thrush, Wood, 111, 112.
 Titmouse, Tufted, 275.
 Vireo, Red-eyed, 233, 234.
 Vulture, Turkey, 51, 52.
 Warbler, Yellow, 193, 194.
 Waxwing, Cedar, 243.
 Woodcock, American, 81, 83.
 Woodpecker, Downy, 265.
 Woodpecker, Red-headed, 257.
 Wren, House, 125, 126.
 Migration of Birds, quotations from, 13, 89, 93, 234.
 Migration of birds, study of, 196.
 Migration of male birds in advance, 93.
 Miller, Olive Thorne, quoted, 59, 60.
 Minnie's land, home of Audubon, 214.
 Minott, H. D., quoted, 236.
 Mniotiltidae, family of, 193.
 Mohegan Indians, referred to, 201.
Molothrus ater, 149, 152.
Monticola ochracea, 293.
 Moore, Dr. Henry, quoted, 53, 128.
 Morpheus, visit of *Halcyone* to, 67.
 Mount Nebo, visit to, 5.
 Mourning dove, 237-241.
 Moth cecropia, referred to, 107.
 Munte, Max, quoted, 26.
 Music by Mrs. and Miss Wheeler, 4.
 Mythology of the belted kingfisher, 67.
 Names, Common, of—
 Bobolink, 167.
 Bob White, 284.
 Bunting, Indigo, 225.
 Cardinal, 10.
 Flicker, 250.
 Goldfinch, American, 230.
 Hawk, Night, 182.
 Heron, Great blue, 70.
 Kingbird, 134.
 Phoebe, 137.
 Shrike, Loggerhead, 51.
 Swift, Chimney, 209.
 Thrasher, Brown, 115.
 Titmouse, Tufted, 276.
 Vulture, Turkey, 51.
 Warbler, Yellow, 194.
 Waxwing, Cedar, 244.
 Woodpecker, Downy, 267.
 Wren, House, 129.
 Naturalist's Summer Evening, The, quotation from, 210.
 Nature study, Buzzard's Roost the place for, 8.
 Nehrling, Henry, quoted, 108.
 Nesbit beech tree, account of, 259.
 Nesbit beech tree, picture of, 4.
 Nestlings, food of, 43, 265.
 Nesting habits of—
 Bluebird, 101.
 Bobolink, 168.
 Bob White, 285.
 Bunting, Indigo, 226.
 Cardinal, 13.
 Catbird, 120.
 Cowbird, 150.
 Creeper, Brown, 281.
 Crow, American, 19.
 Cuckoo, Yellow-billed, 189.
 Dickcissel, 172.
 Dove, Mourning, 238.
 Duck, Wood, 76.
 Flicker, 251.
 Goldfinch, American, 231.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 222.
 Hawk, Night, 183.
 Hawk, Red-tailed, 30.
 Hawk, Sparrow, 36.
 Heron, Great blue, 71.
 Hummingbird, Ruby-throated, 176.
 Jay, Blue, 25.
 Junco, 290.
 Killdeer, 88.
 Kingbird, 132.
 Kingfisher, Belted, 64.
 Lark, Meadow, 155.
 Martin, Purple, 200.
 Nuthatch, White-breasted, 272.
 Oriole, Baltimore, 137.
 Owl, Great Horned, 41.
 Owl, Screech, 47.
 Phoebe, 138.
 Robin, American, 94.
 Shrike, Loggerhead, 58.
 Sparrow, Song, 106.
 Sparrow, Tree, 294.
 Swallow, Barn, 204.
 Swift, Chimney, 212.

Index of Contents—Continued

- Tanager, Scarlet, 218.
 Thrasher, Brown, 116.
 Thrush, Wood, 112.
 Titmouse, Tufted, 276.
 Vireo, Red-eyed, 234.
 Vulture, Turkey, 53.
 Warbler, Yellow, 195.
 Waxwing, Cedar, 245.
 Woodcock, American, 84.
 Woodpecker, Downy, 266.
 Woodpecker, Red-headed, 259.
 Wren, House, 120.
 Newkirk, Garrett, quoted, 280.
 Nightengale, Virginia, referred to, 10.
 Night hawk, 181-186.
 Nuthatch, white-breasted, 271-273.
 Nuttall, Thomas, quoted, 162, 185.

 Odontophorinæ, subfamily of, 283.
 Ogilby, Stewart, quoted, 252.
 Only a Song, quotation from, 122.
 Oologist, quotations from, 151.
 Origin of Species, facts from, 269.
 Oriole, Baltimore, 159-163.
 Our Insect Enemies, quotation from, 301.
 Outdoor life, interested in, 4.
 Owl attacked by blue jays and sparrows, 26.
 Owl, Barn, food of, 43, 303.
 Owl, Great horned, 39-43.
 Owl, Screech, 45-49.
 Owls, hawks and shrikes, as rodent destroyers, 303.
 Owls, Sight of, 48.

 Parker, Benjamin S., quoted, 3, 11.
 Parkhurst, Mr., quoted, 71, 290.
 Parinæ, subfamily of, 271, 275.
 Parus bicolor, 273-278.
 Passerinæ cyanea, 225-228.
 Peabody, Selim A., quoted, 19, 66.
 Pectinated toes of great blue heron, 70.
 Pendulum play of hummingbird, 176.
 Pennsylvania, Scalp Act of, 304.
 Perdiciinæ, subfamily of, 283.
 Phainopepla, mention of, 244.
 Phillips, Charles L., quoted, 252.
 Philohela minor, 81-85.
 Phœbe, 137-141.
 Picidæ, family of described, 249.
 Pigeon, grass destroyed by dove, 239.
 Pigeon grass destruction, illustration of, 300.
 Pioneer life, allusion to, 232.
 Piranga erythromelas, 217-220.
 Plant World, quotation from, 223.
 Plover, American golden, migration of, 89.
 Pools and rivulets in springtime, 277.
 Powder-down feathers described, 69.
 Porter, Gene Stratton, quoted, 14.
 Preening of feathers of birds, 255.
 Progne subis, 199-202.
 Protective coloration, 219, 252, 280.
 Purple martin, 199-202.

 Quaker bird, name of waxwing, 244.
 Quiscalus quiscula aenas, 143-147.

 Rabbit, cotton tail of, 291.
 Range of—
 Bluebird, 100.
 Bobolink, 167.
 Bob White, 284.
 Bunting, Indigo, 226.
 Cardinal, 13.
 Catbird, 120.
 Cowbird, 150.
 Creeper, Brown, 281.
 Crow, American, 18.
 Cuckoo, Yellow-billed, 188.
 Dickcissel, 172.
 Dove, Mourning, 238.
 Duck, Wood, 76.
 Flicker, 250.
 Goldfinch, American, 229.
 Grackle, Bronzed, 144.
 Grosbeak, Rose-breasted, 222.
 Hawk, Night, 183.
 Hawk, Red-tailed, 30.
 Hawk, Sparrow, 36.
 Heron, Great Blue, 71.
 Hummingbird, ruby-throated, 176-
 Jay, Blue, 24.
 Junco, 289.
 Killdeer, 88.
 Kingbird, 132.
 Kingfisher, Belted, 64.
 Lark, Meadow, 154.
 Martin, Purple, 200.
 Nuthatch, White-breasted, 272.
 Oriole, Baltimore, 160.
 Owl, Great horned, 40.
 Owl, Screech, 46.

Index of Contents—Continued

- Phoebe, 138.
 Robin, American, 92.
 Shrike, Loggerhead, 58.
 Sparrow, Song, 106.
 Sparrow, Tree, 293.
 Swallow, Barn, 204.
 Swift, Chimney, 210.
 Tanager, Scarlet, 218.
 Thrasher, Brown, 116.
 Thrush, Wood, 112.
 Titmouse, Tufted, 275.
 Vireo, Red-eyed, 234.
 Vulture, Turkey, 52.
 Warbler, Yellow, 194.
 Waxwing, Cedar, 244.
 Woodcock, American, 83.
 Woodpecker, Downy, 256.
 Woodpecker, Red-headed, 258.
 Wren, House, 126.
 Reaumer quoted, 301.
 Recognition marks and signals, 253, 291.
 Recollect, name of religious society, 244.
 Recollect, name of waxwing, 244.
 Red-headed woodpecker, 257-263.
 Red-tailed hawk, 29-33.
 Reed, C. Albert, quoted, 251.
 Regurgitation, feeding by, 42, 65, 178.
 Reminiscences of school days, 5.
 Reptiles, birds evolved from, 111.
 Red-eyed vireo, 233-236.
 Rice crop, destruction of, 166, 167.
 Ridgway, Robert, quoted, 105, 143, 172.
 Riley, Jas. Whitcomb, quoted, 23.
 Robin, American, 91-97.
 Robin, European, legend of, 92.
 Robin and blue jay, mating of, 25.
 Robin, song of, inspiration of, 95, 305.
 Rocky Mountains, visit to, 240.
 Rodents as destructive pests, 303.
 Rodents a vicious element, 298.
 Rolling Bank, location of, 65.
 Rookery of crows, 18.
 Rookery of turkey vultures, 54.
 Rose-breasted grosbeak, 221-224.
 Ruby-throated hummingbird, 175-180.
 Sabbath day tramping, 4.
 Sanderson, Prof., quoted, 273.
 Sangster, Margaret E., quoted, 127.
 Sapsucker, Little, mentioned, 267.
 Sayornis phoebe, 137-141.
 Scalp Act of Pennsylvania, 304.
 Scarlet tanager, 217-220.
 School day reminiscences, 4.
 School house at Ft. Benjamin Harrison, 5.
 School house, changed condition of, 5.
 Scolding habits of wrens, 125.
 Scolopacidae, family of, 81.
 Screech owl, 45-49.
 Screech owls, species of, 45.
 Shades of Death, account of, 53.
 Shakespeare quoted, 201.
 Sham nests of house wren, 126.
 Shrike, Loggerhead, 57-61.
 Shrike, Northern, account of, 57.
 Shrikes, owls and hawks as rodent destroyers, 303.
 Sialia sialis, 99-103.
 Sialis mexicanus occidentalis, 100.
 Sitta carolinensis, 271-273.
 Sittinae, subfamily of, 271.
 Small things the best things, 128.
 Smith, D. L., quoted, 61.
 Smith, D. S., quoted, 29.
 Smokehouses, old fashioned, described, 277.
 Somerleaze, crows feeding there, 20.
 Somerleaze, pair of cardinals there, 13.
 Sommus, vision of, 67.
 Song sparrow, 105-109.
 Songs of birds, 95.
 Song of birds excels all others, 305.
 Songs of—
 Bluebird, 103.
 Bobolink, 168.
 Bunting, Indigo, 227.
 Cardinal, 11.
 Catbird, 121.
 Dickcissel, 173.
 Goldfinch, American, 231.
 Grosbeak, Rose-breasted, 223.
 Lark, Meadow, 156.
 Oriole, Baltimore, 162.
 Robin, American, 95.
 Sparrow, Song, 107.
 Tanager, Scarlet, 219.
 Thrasher, Brown, 118.
 Thrush, Wood, 113.
 Titmouse, Tufted, 278.
 Vireo, Red-eyed, 235.

Index of Contents—Continued

- Warbler, Yellow, 196.
Wren, House, 129.
Songs uttered only by birds and man, 130.
Sparrow family described, 105.
Sparrow hawk, American, 35-38.
Sparrow hawk, Cuban, described, 35.
Sparrow hawk, Desert, described, 35.
Sparrow hawks, species of, 35.
Sparrow, I am only a tiny, 306.
Sparrows and blue jay attack owl, 26.
Sparrows as weed destroyers, 298.
Sparrow, Song, 105-109.
Sparrow, Tree, 292-295.
Spider, golden-striped, 107.
Spiders, webs of, 107.
Spinus tristis, 229-232.
Spiza americana, 171-174.
Spizella monticola, 293-295.
Spring and autumn compared, 277.
Spring Valley described, 5.
Stanton, Henry T., quoted, 283.
St. Catharine of Genoa, church of, 215.
Stedman, Edmund C., quoted, 103.
St. Lucas sparrow hawk, 35.
Stoddard, Mr., quoted, 196.
Story of the Birds, quotations from, 172, 239, 253, 277, 291.
Stump of Buzzard's Roost tree, 6, 7.
Sturnell magna, 153-157.
Sugar bird, 275-278.
Sugar making, delights of, 277.
Supper with the Wheeler family, 4.
Swallow, Barn, 203-207.
Swift, Chimney, 209-215.
Tanager, Scarlet, 217-220.
Tanagridæ, family of, 217.
Tangled Stars, quotation from, 227.
Taylor, Robert S., quoted, 128.
Terrapin, land, nest of, 147.
Tetraonidæ, family of, 283.
Texas kingfisher, species of, 63.
Thicket at Somerleaze, 228.
Thomas, Edith M., quoted, 273.
Thompson, Dr. Daniel, quoted, 53.
Thompson, Maurice, quoted, 71, 101.
Thompson, Ernest Seton, quoted, 65, 129, 133, 171, 238, 245.
Thorns and thistles, meaning of, 298.
Thrasher, Brown, 115-118.
Thrush, Brown, 115-118.
Thrush, Wood, account of, 111-114.
Thrushes, the silver 'tongued family, 112.
Titmouse, Tufted, 275-278.
Todd's ducks feed and paddle, 3.
Tongue of hummingbird, 178.
Tongue of woodpecker, illustrated, 254.
Torrey, Bradford, quoted, 202.
Tramping, account of, 4.
Tramp, approach of supposed, 6.
Tramp with Bob White, 7.
Trapping of birds, 14.
Tree sparrow, 293-295.
Tree sparrows in Iowa, 295.
Tree sparrows, species of, 293.
Trinity cemetery, chimney swift scene at, 214.
Trochilidæ, family of, 175.
Trochilus colubris, 175-180.
Troglodytes ædon, 125-130.
Troglodytæ, family of, 115.
Troglodytinæ, subfamily of, 125.
Trumball, Gordon, quoted, 82.
Tufted titmouse, 275-278.
Tulip tree, prostrate trunk of, 6.
Tulip tree, where buzzards roosted, 7.
Turdidæ, family of described, 99.
Turdinæ, subfamily of, 111.
Turdus mustelinus, 111-114.
Turkey vulture, 51-56.
Two Vanishing Birds, quotations from, 79, 83.
Tyrannidæ, family of described, 131, 137.
Tyrannus tyrannus, 131-135.
Vandercook's farm visited, 6.
Vandyke, Mr., quoted, 196.
Vegetable kingdom essential to life, 297.
Vicious elements to contend with, 298.
Vireo olivaceous, 233-236.
Vireo, Red-eyed, 233-234.
Vireonidæ, family of described, 231.
Virginia nightengale, referred to, 210.
Vulture, Turkey, 51-56.

Index of Contents—*Continued*

- Walton, Izaak, a lone fisherman, 65.
 Warblers, family of described, 193.
 Warbler, Yellow, 193-197.
 Waxwing, Cedar, 243-247.
 Webber, the naturalist, quoted, 179.
 Weed and Dearbond, quoted, 139, 297, 300.
 Weed, Prof., quoted, 304.
 Weed destruction, problem of, 298.
 Weeds a vicious element, 298.
 Weed seed destroyed by sparrows, 299.
 Wethereld, Ethelwin, quoted, 227.
 Wheeler, Jason M., account of, 4.
 Wheelock, Mrs. quoted, 251.
 Wherefore kill them all, —
 Whip-poor-will, account of, 181, 182.
 White, Bob, meeting of, 6.
 White, Bob, tramp with, 6, 7.
 White-breasted nuthatch, 271-273.
 White, Gilbert, quoted, 42, 210, 303.
 White, M. A., quoted, 151.
 Why protect the birds, 297.
 Wild Birds and Their Music, quotations from, 162.
 Wilson, Alexander, quoted, 23, 41, 46, 56, 61, 72, 77, 81, 82, 89, 102, 113, 116, 119, 135, 138, 145, 153, 218, 251, 257.
 Wood, H. L., quoted, 212.
 Wood, Theodore, quoted, 301.
 Wood, Wm. A., quoted, 48.
 Woodcock, American, 81-85.
 Woodcocks distinguished, 81.
 Wood duck, 75-79.
 Wood Notes Wild, quotations from, 107, 118.
 Woodpecker, Downy, 265-269.
 Woodpecker family described, 249.
 Woodpecker family, protectors of trees, 269.
 Woodpecker, Golden-winged, 249-255.
 Woodpecker, Little Guinea, 267.
 Woodpecker, Red-headed, 257-263.
 Woodruff, F. M., quoted, 58.
 Wood thrush, 111-114.
 Woollen, Evans, Jr., quoted, 173.
 Woollen's Garden of Birds and Botany, 6-8.
 Wordsworth, William, quoted, 191.
 Wren, House, 125-130.
 Wren, Winter, discovery of, 24.
 Wren's nest at Elmhurst, 127.
 Wright, Mable Osgood, quoted, 112, 235.
 Yellow-billed cuckoo, 187-191.
 Yellow hammer, 249-255.
 Yellow warbler, 193-197.
 Young, Oologist, quotation from, 252.
 Zamelodia ludoviciana, 221-224.
 Zenaidura macroura, 237-241.

RETURN TO the circulation desk of any
University of California Library

or to the

NORTHERN REGIONAL LIBRARY FACILITY
Bldg. 400, Richmond Field Station
University of California
Richmond, CA 94804-4698

ALL BOOKS MAY BE RECALLED AFTER 7 DAYS

- 2-month loans may be renewed by calling
(510)642-6753
- 1-year loans may be recharged by bringing
books to NRLF
- Renewals and recharges may be made
4 days prior to due date

DUE AS STAMPED BELOW

SENT ON ILL

OCT 20 2005

U.C. BERKELEY

DD20 1M 3-02

256 239

QL 684

I6 W6

Woolen

Biology
Library
G

THE UNIVERSITY OF CALIFORNIA LIBRARY

